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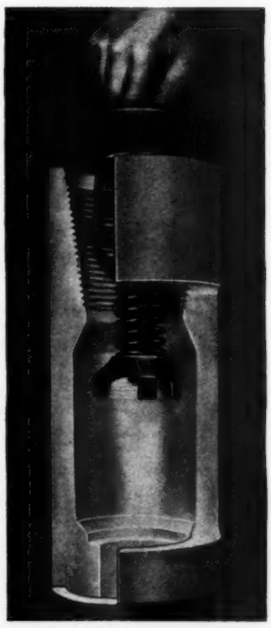

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Substantial Increase in Field Operations Shows Desire of Companies to Build Up Reserves

By ANDREW M. ROWLEY

WHILE drilling activity in different promising areas throughout the country continues at a high level, there being 1,397 new operations started during March in the territory east of California, no new discoveries of importance have been made. One result is an increasing demand for production and producing properties while the records show many companies have increased their drilling operations quite substantially as compared to what they were doing at this time last year.

One important change in field conditions is the fact most of the larger producing companies have been purchasing acreage, which has been checked by their geological and engineering departments, on which they intend to do their own drilling. Previously much of the acreage bought by these companies was acquired solely as a matter of protection in case someone else made a discovery in the vicinity. Now the companies plan to develop these properties as most of them are anxious to build up reserves for the future.

Both producers and refiners are watching the situation in East Texas quite closely. Hot oil production there has been the principal cause of weakness in both the crude and refined oil markets and the better situation in the gasoline market during the past week is attributed to reports of the shutting down of a substantial number of refineries in the East Texas area. Many producers and refiners, however, are discounting these reports to some extent as there have been rumors some refineries that are closed during the day have been running at night.

The entire industry and the petroleum administration at Washington realize probably more than ever that curtailment of production to consumer requirements is the keystone of the stabilization program and that this must be accomplished before other plans advocated can be made effective. Centering efforts at this time to hold crude oil output and gasoline manufacture to consumer demand will hasten recovery and will do more than anything else, probably, to clear the atmosphere. In fact, if production of both crude oil and gasoline is held to reasonable levels the industry will be in a position to go about its business and forget many of the other things advanced as cures for existing problems.

It now appears that a substitute cartel for the Pacific Coast will be agreed upon in the near future and that other matters which have caused uncertainty regarding the outlook will be decided in the near future. Removal of this uncertainty will go a long way towards improving the situation. The price structures would be strengthened if the industry were assured of a better balance between production and consumption and that distress material would be taken care of.

Crude Oil Production in the United States

Estimated daily average production for the week ending April 14, and a comparison with previous week and one year ago, follows:

	Apr. 14	Apr. 7	Apr. 15, 1933
Oklahoma—			
Oklahoma City	189,545	166,020	30,615
Seminole-St. Louis	104,600	99,735	104,520
Remainder of State	228,440	194,750	200,485
Total Oklahoma	522,585	460,505	335,620
East Texas—			
Lathrop	202,975	222,380	59,145
Kilgore	147,530	161,635	38,280
Joiner	131,620	144,205	42,325
Total East Texas	482,125	528,220	139,750
West Texas	132,215	132,315	160,460
North Central Texas	89,594	89,457	75,236
Texas Panhandle	51,622	54,095	48,415
East Central Texas	43,815	44,162	57,595
Gulf Coast—Texas	161,895	162,545	149,214
Southwest Texas	47,613	49,558	52,163
Total State of Texas	1,008,879	1,060,352	682,833
Kansas	131,585	123,710	121,640
North Louisiana	26,375	26,830	30,835
Gulf Coast—Louisiana	49,965	46,415	40,692
Arkansas	30,635	30,730	30,305
Eastern (except Michigan)	98,750	98,600	91,900
Michigan	28,372	28,060	14,100
Rocky Mountain area	84,010	82,780	74,923
California—			
Santa Fe Springs	44,000	42,250	53,500
Long Beach	65,750	61,500	68,000
Playa Del Rey	10,100	9,250	11,750
Elwood	9,350	10,250	12,500
Kettleman Hills	55,000	49,750	59,250
Remainder of State	307,550	297,000	263,500
Total California	491,750	470,000	468,500
Total United States	2,472,906	2,427,982	1,891,348

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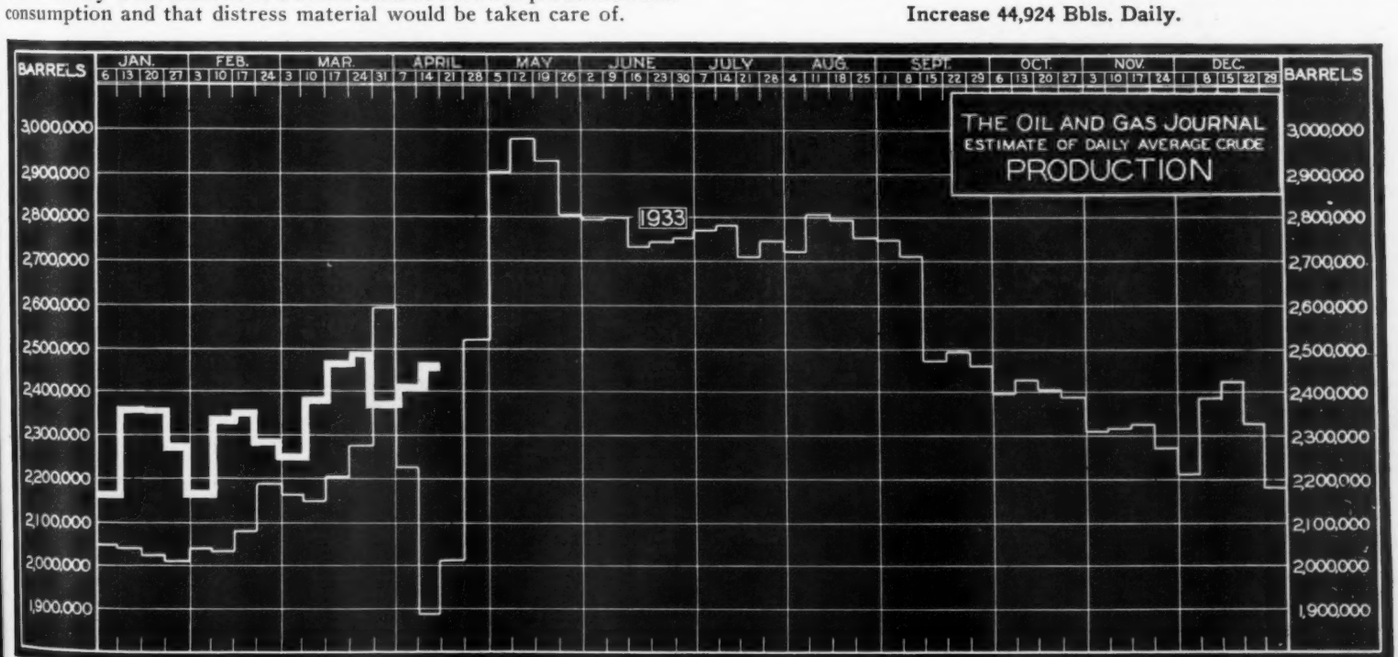

Labor Policy Board Rejects the Interpretations of Both Sides After Hearing on Wage Schedules

WASHINGTON, D. C., Apr. 16.—At the hearing before the Petroleum Labor Policy Board, called for the purpose of developing information on the basis of which that board could recommend to the oil administrator, Secretary Ickes, fair and equitable differentials for skilled labor above the minimum for common labor specified in the petroleum code for fair competition, it developed that neither the representatives of labor nor the industry had prepared the particular information in the form most suitable to the board.

The representatives of the industry presented differentials which it considered fair and equitable as minima. They endeavored to show the board that while the wages paid by far the largest part of the industry was well above the wages resulting from the application of the differentials, these suggested rates would nevertheless result in bringing the wages of the smaller operators up to the minima, while the companies paying in excess of the minima would not reduce those wages. A letter from the Planning and Co-ordination Committee was introduced for the record to support the representation that no reductions in wages were intended or contemplated. The repeated references at the hearing to the proposd minima as "atrocious" wages have no foundation in fact, because they were not to be considered as wages except for those small units and stripper operators who are struggling for existence and for whom the application of the higher rates paid by the industry generally would not only be oppressive, but fatal. Considerable evidence was placed into the record to support the plight of the small oil operators and for that matter the independent refiners.

It is significant that but little evidence was presented by labor regarding, and practically no criticism made of, wages actually paid by the industry in its several departments. What was said was aimed at the operations in stripper fields—in Pennsylvania and Ohio, where some drilling contractors were said to be working men long hours on low wages, and by "tea kettle" refiners. The evident objective of such wage information as was presented by labor was to show that the differentials were atrocious because of the rates resulting from them were less than rates actually paid by the more representative part of the industry.

Board's Position

When the chairman of the board, W. M. Leiserson, made a statement at the end of the hearing to the effect that the board would not recommend wage rates or even minima, but would recommend fair and equitable differentials above the minimum for common labor, as developed from its study of wages before and after the application of the code, and when the board further said that it was not intended by the law or by the code that code wage rates should make for weekly earnings equal to wages earned before the code or at any particular time, the industry's representatives stated that they would forthwith get into the record all of the data they have that might be helpful to the board. Harvey Fremming, the representative of labor, expressed his loss of confidence in all governmental boards and in the Petroleum Labor Policy Board in particular, and that it looked like the only thing left for him to do was to advise "his people" to use their economic strength—to strike. Just what part of the industry's labor Mr. Fremming represented was rather a moot question.

The public hearing proved only one thing—that it was unfortunate the ambiguous Section 4, of Article 2, should have been left in the petroleum code since it is impossible of "equitable" interpretation. Moreover, although Section 4 was the only section at issue in this hearing, it was apparent that the provisions of Section 7 were constantly being injected into the discussion. These two sections read as follows:

Section 4. There shall be an equitable adjustment of the differentials between the rates for skilled jobs and minimums established in this code for common labor as determined by the regional committees from time to time in each area subject to the revision and approval of the Planning and Co-ordination Committee, and subject to final determination of the President.

Section 7. Employes in this industry shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from interference, restraint, or coercion by employers of labor, or their agents, in the designation of such representatives or in self-organization, or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection. No employe in this industry, and no one seeking employment therein shall be required as a condition of employment to join any company union or to refrain from joining, organizing or assisting a labor organization of his own choosing. Employers of labor in this industry shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment approved or prescribed by the President.

Each of the three groups represented at the hearing, representatives of regional employers, organized labor and the Labor Policy Board, presented a different interpretation of Section 4 and the arguments in support of each theory frequently confused the purposes of this section with the collective bargaining provisions of Section 7. The three interpretations are briefly given in the order of their presentation.

Committee Recommendations

The Planning and Co-ordination Committee endeavored to fulfill the purposes of Section 4 by offering a scientific job classification covering all of the skilled job names commonly used in the industry in production, natural gasoline, refining and transportation. Opposite each job classification was a minimum differential above the minimum common labor rate fixed in the code for each geographic area.

In support of this recommendation it was argued that a literal interpretation of Section 4 would require the regional committees to determine the pre-code common labor rate and the exact differential paid to each skilled worker by each employer in his several plants or field localities. This would be an interminable, if not impossible task and beyond their ability to finance. If such differentials could be established they would still necessarily be minimum rates per hour based on rates existent immediately previous to the code. The code reduced all working hours to a parity and the actual reduction in weekly hours varied widely in all job classifications including common labor, hence no historical relationship which had grown up in any company or district could be maintained since such relationships were utterly disrupted by the code provisions. After several months of continuous work the several regional committees therefore decided that the only possibility of an early and equitable solution of Section 4 was to discard any attempts for directly relating pre-code and post-code differentials, but to start with a clean slate and build up a reasonable job classification and minimum wage relationship which would be influenced by past general relationships so amended as to iron out most of the inequalities engendered when all working hours were reduced to a parity.

Labor Recommendations

Representatives of union labor made a flat demand for 100 per cent of 1929 weekly earnings regardless of any change in hours worked. Their chief argument was a temporary provision in the tentative code relating this adjustment to July 1, 1929, differentials, even though this provision was deleted in the final code signed by the President.

These representatives also apparently attempted to effectuate the provisions of Section 7 in their interpretation of Section 4.

Representatives of labor argued that marginal and submarginal operations, including stripper wells, small refineries, natural gasoline plants and other operations, should not be granted any favors under the wage provisions of the code and that if such operations would not warrant the payment of regular wages such as are paid in flush fields and larger plants, they should be abandoned. They failed, however, to show how the 75,000 to 100,000 employes who might be thus affected could find employment elsewhere in the petroleum industry. It

(Continued on Page 30)

Petroleum Industry Electrical Association Holds Its Seventh Annual Meeting

DALLAS, Tex., Apr. 16.—The Petroleum Industry Electrical Association adjourned its seventh annual meeting at the Baker Hotel after two and a half busy days spent discussing technical subjects relating to the communications, or telegraph and telephone, departments of producing and pipe line companies. Problems confronting these departments are many, varied and technical, and these annual meetings of the representatives of the 17 companies included in the association, offer practically the only opportunity they have of combining to study and discuss their work.

Matters brought up for discussion were "wire troubles"; the code and its relation to the division line men's working hours and wages; standardization of material and construction; power agreements; telephone and telegraph agreements; attachment, rentals and rates; electrolysis; possibility of using wired radio for communication systems.

The association was formed in Fort Worth in 1927 by men in the communications department of the oil and pipe line companies, the majority of whom are electrical engineers. By-laws drawn in 1927 were reviewed by a committee appointed to recommend changes.

D. H. Levy, electrical engineer for the Magnolia Pipe Line Co., Dallas, and Hezzie Clark, electrical engineer for the Humble Pipe Line Co., Houston, gave illustrated discussions on "Electrolysis."

Morris Chambers of Shreveport, superintendent of telegraph for the Standard Oil Co. of Louisiana, was named president to succeed C. O. Shirley of the Phillips Petroleum Co. of Bartlesville, Okla. J. W. Flint of the Empire Pipe Line Co., Bartlesville, Okla., was chosen vice president, and H. E. Browne, Sinclair Prairie Pipe Line Co., Independence, Kans., was re-elected secretary-treasurer.

The following directors were elected: C. O. Shirley, chairman; A. J. Balcom, Magnolia Pipe Line Co., Dallas, Tex.; F. S. Leonard, Shell Petroleum Corp., St. Louis, Mo.; P. F. Davis, Texas Pipe Line Co., Tulsa, and R. M. Bayless of the Humble Pipe Line Co., Houston.

Dallas was chosen as the meeting place for 1935 and A. J. Balcom was named chairman of the entertainment committee.

The following were named on the standards committee: J. H. Borchers, Texas Pipe Line Co., Houston; F. P. O'Connor, Stanolind Pipe Line Co., Tulsa; Robert Norton, Union Gas System, Houston. The safety committee is composed of P. F. Davis of the Texas Pipe Line Co. of Oklahoma, Tulsa; D. W. Simms of the Continental Oil Co., Ponca City, Okla., and Grover Reed of the Lone Star Gas Co., Bowie, Tex. The equipment committee is composed of D. R. Welch of the Sinclair Prairie Pipe Line Co., Independence, Kans.; L. E. Adler, Magnolia Petroleum Co., Dallas, Tex., and Hezzie Clark of the Humble Pipe Line Co., Houston, Tex.

The association's annual banquet was held Friday night at the Baker Hotel.

Group at Petroleum Industry Electrical Association meeting

Revised Refinery Control Plan and New Pacific Coast Agreement Will Likely Be Approved

By HUGH D. MALLON
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 16.—The petroleum industry is about to get, in the shape of an adequate refinery control program, the needed stimulant to insure a better balanced recovery. A proposal advanced by Axtell J. Byles, president of the American Petroleum Institute, to control these operations and to place this control in the hands of the Planning and Co-ordination Committee is understood to have received the tentative approval of the oil administrator, Harold L. Ickes. This plan, it is understood, will receive the administrator's formal approval practically as submitted.

In submitting this plan to the Petroleum Administrative Board at the public hearing last Wednesday, Mr. Byles stated that he spoke in behalf of 24 refiners representing over 80 per cent of the industry. It is understood that these companies are the Atlantic Refining Co., Cities Service Co., Colonial-Beacon Oil Co., Continental Oil Co., Gulf Refining Co., Humble Oil & Refining Co., Indian Refining Co., Mid-Continent Petroleum Corp., Ohio Oil Co., Pure Oil Co., Richfield Oil Corp., Shell Union Oil Corp., Sinclair Refining Co., Skelly Oil Co., Socony-Vacuum Corp., Standard Oil Co. of California, Standard Oil Co. (Indiana), Standard Oil Co. of Louisiana, Standard Oil Co. of New Jersey, Standard Oil Co. of Ohio, Sun Oil Co., Texas Corp., Tide Water-Associated Oil Co., and Union Oil Co.

Production Control

Mr. Byles said that in the opinion of the officials of this group effective control of crude oil production was of paramount importance, and that in the absence of this control this plan or any other plan which might be approved would be of very little value.

At the same time Mr. Byles proposed that the membership of the Planning and Co-ordination Committee be increased by the addition of 11 more members, 7 of whom should be of, and acceptable to, the 24 companies presenting this program. It is generally known that the Petroleum Administrative Board is busily at work at the present time checking over several names which have been submitted to it by members of the industry for appointment on the committee. There is some doubt as to whether 11 or 9 new members will be appointed, but it is certain that there will be an addition to the committee.

New Plan for California

A substitute agreement is being drawn up and submitted for signature to the signers of the Pacific Coast cartel, which was declared to be illegal by the Justice Department, it became known today when the petroleum administrator issued a statement declaring a moratorium on the solicitation of business of pumps handling unbranded products now supplied by independents. The order was issued to permit the refiners time in which to formulate and obtain signatures to the substitute agreement.

The moratorium is to remain in effect until April 23 if the substitute plan is not signed by that date, or until the administrator has passed on it if the agreement is submitted to him by that date. Necessary signatures are expected within 10 days.

The administrator stated that he had carefully considered this agreement and had determined that it would not operate to promote monopoly or discriminate against or oppress small enterprises and that it is in accord with the principles of the NRA.

It has been learned that the new agreement does not mention the setting up of differentials between integrated companies and independents, but that the cartel plan has been followed as much as was possible with the avoidance of controversial points which have been questioned by the Justice Department. Apparently this agreement will be more on the order of a purchasing agreement than was the cartel.

Provision will probably be made that signatories will refrain from knowingly handling or refining "hot oil," and that the Pacific Coast Petroleum Agency, the designation of the signatories to the agreement, will assist the administrator in discharging his duty of fixing and enforcing crude oil allocations and controlling the supply and inventories of gasoline.

Refinery Control Amendment

The only change which it is anticipated that the administrator will make in the suggested refinery control amendment is in regard to allocations. Provisions will probably be made for the approval by the petroleum administrator of all allocations made.

Text of Proposed Revision

The text of the proposed revision of Article 4 of the oil code, suggested on behalf of 24 companies by Axtell J. Byles to the oil adminsitration at the public hearing on April 12, follows:

Article 4—Refining:

Section 1. To achieve greater accuracy in balancing production and consumption of gasoline and to prevent the injurious effect on interstate commerce of an unbalanced accumulation of inventories of gasoline in any part of the country or of surplus production and consequent distribution of gasoline in excess of market requirements, a Federal agency designated by the President shall divide the country into refining districts and shall in collaboration with the Planning and Co-ordination Committee determine from time to time:

(1) The proper inventories of gasoline for the country as a whole and

(2) The production of gasoline in the country as a whole necessary to meet the demand therefor, with due regard to normal and seasonal fluctuation in refining operations.

The determinations so made shall constitute the operating schedule for the refining industry in the country as a whole, and same shall be published for at least 20 days before the effective date thereof.

Sec. 2. The Planning and Co-ordination Committee shall appoint a national co-ordinator of refining operations, subject to the approval of the President, and may appoint a district allocator for each district. District allocators shall co-operate with the regional refinery committees and other committees or agencies designated by the Planning and Co-ordination Committee in making effective the provisions of this article. The Planning and Co-ordination Committee shall appoint, subject to the approval of the President, a board of review consisting of not to exceed 10 in number, for the purpose of reviewing the findings and allocations of district allocators, the agencies established by the refinery district committees (where no allocator is appointed), and the national co-ordinator.

Sec. 3. The national co-ordinator and the district allocators (or the proper agency established by the refinery district committee where no allocator is appointed), in joint session, subject to the approval of the Planning and Co-ordination Committee, shall determine from time to time:

(1) The proper inventories of gasoline for each district and

(2) The production of gasoline in each district necessary to meet the demand therefor, with due regard to normal and seasonal fluctuation in refining operations.

The determinations so made shall constitute the operating schedule for the refining industry in each district and same shall be published for at least 15 days before the effective date thereof.

(3) Within the limits of the operating schedule for the refining industry in each district as thus determined, an agency designated by the Planning and Co-ordination Committee and the district allocator (when one is appointed) in joint session, shall establish fair and reasonable quotas for each refinery operating in the district. In the event of disagreement between a district allocator and the agency designated above or in the event of the failure of such agency to act, the district allocator shall establish such quotas subject to appeal as herein provided.

In making such allocations they shall take into consideration relevant features of operating and marketing conditions

(Continued on Page 56)

Eastern Producers Association Fears the Abandonment of Stripper Wells

WARREN, Pa., Apr. 16.—Floyd Clinger, president of the Middle District Oil Producers Association, addressing the annual meeting of the group, reported that all efforts to obtain exemption for stripper well operations under the labor code apparently came to naught.

"I am afraid," he said, "that the case for the employers and employes in this region before the petroleum labor board has fallen on deaf ears. More than that, the prospect that the enforcement of the code will result in the abandonment of thousands of wells and the disemployment of many thousands of people who depend for their livelihood on this output does not appear to disturb those who are expected to pass judgment on these issues."

It is characteristic of stripper well operation all over the country, Mr. Clinger said, that the lease owners and their workmen have operated under a sort of partnership which has been eminently satisfactory to all concerned. When the price of oil was high wages were high. When the income dropped the employes, fully understanding the problem, accepted such decreases as were necessary. There has been no discontent and no disturbance. Now, under the code operation, newly formed unions assume to represent the workmen and are making demands for high wages irrespective of the returns which the producer may receive.

"I am frank to say that I do not know of one employe in this district who belongs to the unions which sit beside the labor administrators at Washington who are even remotely sympathetic toward the demands being made in their name."

Mr. Clinger asserted that a strict application of labor provision, if no changes are made, will doubtless result in a great decimation of the producer interest in the Pennsylvania as well as in other fields. The volume of production will not be greatly affected, he said, since the output of each well can be counted only in fractions of a barrel per day. The two great calamities will be the destruction of the hundreds of thousands of dollars in investment and in the loss of employment to a host of men who are quite willing to work for small wages if only they are permitted to stay on the job.

One witness before the board, Mr. Clinger reported, flatly told the labor board that if enforcement of unreasonable regulations were attempted there would not be enough jails in the oil country to hold all the violators or, if the Government did succeed in closing the wells, there would not be enough poorhouses to shelter all who would be thrown out of work.

Other speakers at the annual meeting were George Reid of the Joseph Reid Gas Engine Co., who discussed the installation and operation of pumping powers in the Pennsylvania region, and Norman E. Maxwell, geologist for the Crew-Levick Co., who gave a general description of the geologic history and present formations in the Warren-Tidioute region.

The anticlines and synclines for which geologists search in western fields are absent in western Pennsylvania, Mr. Maxwell said, except that they become apparent east of the oil fields in the gas territory. Oil was found before the best informed geology knew much about the conditions under which it might be expected to be found, he said, and the closest studies now being undertaken are 75 years behind the actual discovery of oil. Early well records are incomplete and inaccurate, he explained, and even today coring is not being followed as systematically as could be desired.

Answering a question from the floor on the probable oil content of an average acre in the "middle" district Mr. Maxwell made this suggestion: "There are 43,560 square feet in an acre. Our sands average about 30 feet in thickness. That gives us an approximate sand area of one and a third million cubic feet. The porosity runs from 7 to 35 per cent—make it 10 per cent for easy calculation. Then assume 40 per cent oil saturation and you have a reasonable expectancy of 8,336 bbls. per acre, most of which, of course, still is in the sand."

The officers and executive committee of the association were re-elected. About 50 producers and their employes attended the meeting, which was held in the Warren County court house.

Proper Design and Operation of Steam Power Plants Pay Dividends in Lower Refining Costs

By DANIEL IRWIN

The part played by steam power plants in refinery operation often is not fully appreciated by those in charge of the design and construction of new equipment. The tendency is to place all the emphasis on the main oil distillation phases including the immediate auxiliary operations and consider the steam power plant as a necessary but relatively unimportant adjunct which has a minor role in the manufacturing end of the oil business. The truth is that the difference between loss and profit in a year's operation is often found in the boiler room.

Antiquated or improperly designed and operated power plants mean high costs for the entire refinery operation. Uniformity in refinery operation centers in the power plants and the operator who has an inadequate unit will lack that continuity so essential to manufacturing efficiency.

In regard to steam plants there are two outstanding facts which must be kept in mind in design and operation:

First, the overall operating cycle which includes the steam generator furnace and not merely the prime mover or the steam cycle in themselves, determines the true efficiency of the power plant.

Second, this overall efficiency determines the cost of power.

In this article the basic features of a steam-electric generating power plant are discussed briefly. Definite tangible values are used to establish proportions of the equipment and also set out the ideal ratios and efficiency ratings that might be expected in a modern power plant. While it is obvious that a very large prime mover and generator would have greater efficiency than a small similar unit, in general the size of the power plant is unimportant in the overall operating cycle efficiency.

Factors to Consider in Power Plant Design

In this discussion the author outlines a basis for determining the size of power plants for refinery operation based upon the study of actual or anticipated power demand. He points out that the characteristics of refinery power demand are ideal for the generation of power when compared for example with the public utility power plant.

In the detailed flow diagram simplicity in equipment and connections is suggested together with the choice of good materials and workmanship important in assuring expected operation without major accidents. In the selection of equipment, preference should be given to new designs or re-designs made within the past two or three years by manufacturers.

Proper operation is impossible without suitable, dependable instruments for indicating and recording. According to the author manual logging by the operator is preferable to automatic recording, the latter being used merely as a check on the alertness of the operator and the honesty of his reports.

Maintenance of proper overall plant efficiency once established rests chiefly in the combustion of the fuel and in the proper technical supervision of the work of operation.

Monthly Demand Chart

A study of the typical monthly demand as shown in the accompanying chart will establish the plant capacity. The connected capacity will lie between the maximum daily average demand and a value above the maximum daily peak load; the smallest prime mover size will be above the minimum daily average demand. The plant capacity should be in multiples of the smallest prime mover required.

Unlike a public utility, the refinery power plant has distinctive characteristics. The peak loads are close to the daily average demand and they may be controlled by a spread in time of the secondary pumping operations. Again, the daily demand, the peak load or the average load is not subject to severe fluctuations. The power load is ideal for economical generation of power.

For this discussion the lowest daily average demand is assumed to be about 1,000 K.V.A., and the maximum daily average demand is about 2,000 K.V.A. This would seem to establish the connected capacity of the plant as 3,000 K.V.A., with three prime movers, and their electric generators and auxiliary equipment. Each unit is 1,000 K.V.A. This gives one machine for minimum load, two for maximum load and one for standby, or for extreme peak load periods.

Each prime mover should have its corresponding steam generator (furnace and boiler), interconnected for flexibility with individual condensing equipment, a common stack and two feed-water pumps, each of full required capacity. Other equipment, not reasonably subject to breakdown or stoppage might be in single units for the plant. The piping should be simple in arrangement, with no provision for operation during a major accident. The better principle is to assume that accident will not occur because of inferior workmanship or materials. For an example, eliminate cast iron for parts under fluid pressures.

The plant capacity, as stated would be 3,000 K.V.A. The prime movers may be steam turbines or steam unaflow engines directly connected to electric generators. Turbines or unaflow engines should operate condensing and taking superheated steam. Four hundred pounds gauge steam pressure at 700° F. (250 degrees superheat) is selected, as the present practical limit for power plants. The following table gives the steam characteristics:

STEAM CHARACTERISTICS

Line and steam—	Pres. lbs.	Temp. °F.	Total heat per lb.† B.t.u.
13a main	400	700	1,361
2b bleeder	150	550	1,256
3b bleeder	40	337	1,164
1b exhaust ...	(*)	125	949

*26-inch. hg. vac.
†"Steam Tables and Mollier Diagram," by Keenan. Amer. Soc. Mech. Egrs., 1930.

Steam is expanded adiabatically (Rankine cycle) in the turbine, that is, the entropy is constant at 1.636. Elsewhere, values are taken from tables of saturated steam. The essential data for the turbo-generators follow:

TURBO-GENERATORS

	B.t.u.
3,000 K.V.A. × 3,415 B.t.u.†	10,300,000
5 per cent generator losses†	700,000
22 per cent turbine losses‡	3,100,000
Total heat input	14,100,000

†"Manual of Mathematics," by Hudson and Lipka.
‡"Mechanical Engineering," Vol. 52, No. 8, p. 767, by Christie.

Of the total steam entering the tur-

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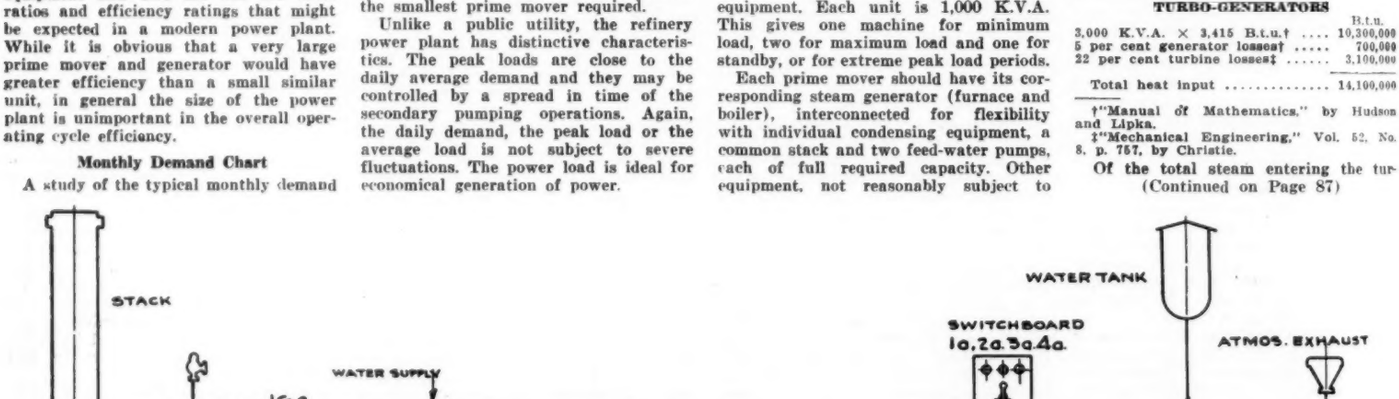


Flow diagram of steam power plant for refinery operation

Evaporation and Corrosion Practically Eliminated in Oil Field Pipe Line Gathering Equipment

By L. G. E. BIGNELL
Petroleum Engineering Editor

The Reagan County Crude Oil Purchasing Co., a subsidiary of the Continental Oil Co., Ponca City, Okla., decided in the summer of 1933 to install a vapor gathering system designed by J. H. Wiggins, consulting petroleum engineer, Tulsa, at its gathering pipe line terminal in the Big Lake Field, Reagan County, Texas. This system consists of one 150-foot diameter by 5-foot high steel balloon and five 80,000-bbl. steel tanks equipped with breather type steel decks, all units connected together with a system of large piping. The installation was completed November 25, 1933, and has been in operation since. This will constitute a preliminary report of results obtained and should prove of interest to all pipe line companies and handlers of crude oil or its products. The crude oil produced in the Big Lake Field is mostly of high sulphur content and accompanied with a large percentage of hydrogen sulphide gas, two conditions that have resulted in heavy corrosion losses to all types of equipment. It was partly to eliminate this high corrosion loss that this system was selected and to date it has proved its efficiency although it is rather early in the test to make any final decisions on this point.

Tests to Be Continued

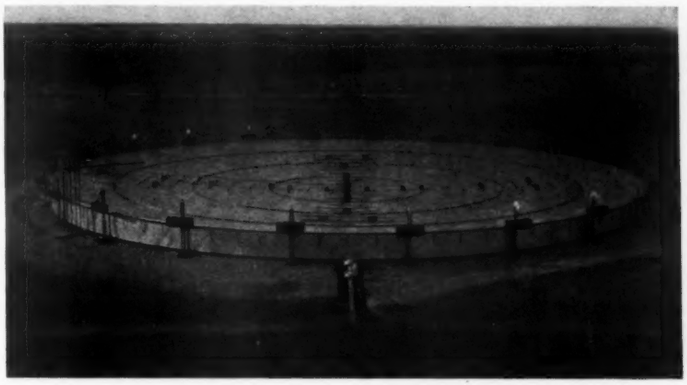
A description of this system was given in an article in the October 12, 1933, issue of The Oil and Gas Journal. This will be briefly reviewed and a preliminary report made. The results so far are quite satisfactory, but the tests will be continued until everything possible about the operation of this gathering system is learned.

The accompanying pictures show the principal feature of this rather unique vapor handling system, the steel balloon that acts as an accumulator for vapors forced out of the five 80,000-bbl. steel storage tanks as their breather decks reach their maximum upward movement caused by expansion of the vapor due to heat absorbed from the sun's rays or by displacement of vapor within the tanks by filling with crude oil.

This steel balloon is 150 feet in diameter and the side sheets forming the outer shell are 5 feet high. The center when filled is approximately 14 feet high and the balloon assumes a partially elliptical shape when filled with vapor. That is the deck and bottom, made of 14-gauge steel, tend to form as nearly a sphere as possible, the natural form for metal or any other material to assume when free to move and inflated with gas or air. However, due to its construction the steel balloon in this gathering system cannot become a true sphere but the deck and bottom are nicely rounded out when the balloon is filled.

The balloon has a capacity of about 168,000 cubic feet of vapor when filled and is provided with a vent that will permit excess vapor to escape to the atmosphere at pressures varying from three-quarters to 1⅛ inches of water. This variation in release pressure depends upon the degree of fullness of the vessel. If full it will begin discharging at 1⅛-inch water pressure.

Most steel storage tanks are provided with the regular pitched sheet steel decks. Others have the Wiggins Floating Roofs. The five 80,000-bbl. steel work tanks on the Reagan County Crude Oil Purchasing Co. pipe line have been provided with flexible roofs that move upward when the vapors within the tanks expand due to the vapors absorbing heat from the sun's rays. When these expanded gases contract, due to cooling, the decks again settle down to the rafters.



Deflated 150-foot diameter steel balloon at Reagan County Purchasing Co.'s gathering system terminal in Big Lake field, Texas

This system has been devised by J. H. Wiggins, a well-known petroleum engineer of Tulsa, and embodies ideas developed by Mr. Wiggins during his study of evaporation of crude oils and its products. If the products of evaporation are confined to some system that is free of air and only the excess vapor permitted to vent to the atmosphere, to prevent rupture of the steel making up the elements of the gathering and handling system, it has been demonstrated that very little of the lighter fractions of the petroleum or its products will be lost.

To provide a means for actually gathering vapors as they are displaced either by the entrance of fluid into the tanks or expansion of vapors over these fluids due to heating of the shell of the tank, or both actions, is the basic principle of Mr. Wiggins' invention. The steel balloon with its pipe system and the breather roofs on the storage tanks all form intricate parts of the vapor gathering and handling system. The vents upon the tank decks will open at from 2 to 2⅛ inches of water pressure. The pressure exerted by 1-inch head of water at 62° F. is equal to .5774 ounce or .036085 pound per square inch.

The system designed by Mr. Wiggins is based upon the principle of providing ample space, above the fluid in the tanks and additional space in a steel balloon, to permit all of the vapors or gases produced in the tanks to expand and contract without any of the gas or vapor venting to the atmosphere. In actual practice the Wiggins vapor gathering system has retained all vapors within the tanks or balloon, or both, for a period of more than 30 days without any of the vapor or gas being vented to the atmosphere. Theoretically it is possible to provide sufficient handling or gathering space in this type system to keep the vents from ever opening.

A study of the very complete hourly records that have been maintained covering every phase of the operation of this gathering system in Reagan County proves rather conclusively that this action may be likened to a process and if properly supervised and every detail taken care of at the proper time the fractions that leave the fluid at one time will return to the fluid when changes take place later. The change referred to generally involves the absorption and liberation of heat.

Results to Date

This system was put into service November 25, 1933, and up to date it has functioned satisfactorily with known benefits to the owners of the oil and retention of gravity and volume of the fluid handled. The report for the month of March shows that the average high atmospheric temperature for that area was 77.5° F. and the average low temperature 38.3° F. There was an average daily variation of temperature of 39.2° F. Heat was added during the daylight hours and liberated at night.

This movement of expanded vapors averaged 166,961 cubic feet daily throughout the entire system. The total capacity of the tanks and steel balloon is about 2,225,000 cubic feet if entirely empty. The average movement of the steel balloon shell was found to be 35.3 inches each day in handling this volume of vapor.

A check of the amount of crude oil that entered and left the tanks during the month of March shows an average of about 9,700 bbls. daily. This is by no means the capacity of the tank farm and pump station and over 20,000 bbls. per day can be handled with a nearly complete saving of vapors.

The vapor gathering capacity of each Wiggins breather roof on the 80,000-bbl. steel tank is 15,000 cubic feet. This provides a total gathering space of 75,000 feet for the five tanks and with the added vapor handling capacity of the steel balloon of 168,000 cubic feet the total variable vapor space is 243,000 feet for the system. It was in this space that an average of 166,961 cubic feet of vapor was handled daily during March as reported above.

Recording Movement of Deck

To record the movement of the deck a light structure has been built at the side of the steel balloon and from this structure a cantilever arm is carried out 15 feet over the steel balloon deck and furnished with light pulleys or sheaves at each end of the arm. Cable is strung over these sheaves and one end of this cable is fastened to an angle iron deck stiffener that is 15 feet from the rim of the balloon. The other end of the cable is attached to a "tell-tale" that moves up and down a graduated surface and indicates the movements in the deck at all times. Hourly readings of this "tell-tale" are made and the movement in feet and inches is converted into volumetric displacement in the steel balloon by reference to a table prepared for this purpose. These records reflect the conditions within the steel balloon only and not in the entire system.

Other hourly records are taken of every detail of operation of the system. These records have been carefully analyzed and plotted and it is very interesting to note the cor-relation of every function of the system. This study seems to show quite conclusively that if the vapor given off from a volatile liquid is not permitted to escape from the vessels handling it and it is not mixed with other gases or air when change in temperature occurs the vapor will be absorbed and its constituents again enter into the fluid in the tanks.

This constitutes a very definite process and requires certain adjustments be maintained in the system. The design of steel balloon, breather decks and connecting pipe lines takes care of these variations required to make this process operative but nevertheless it can be termed a process and as a result of its

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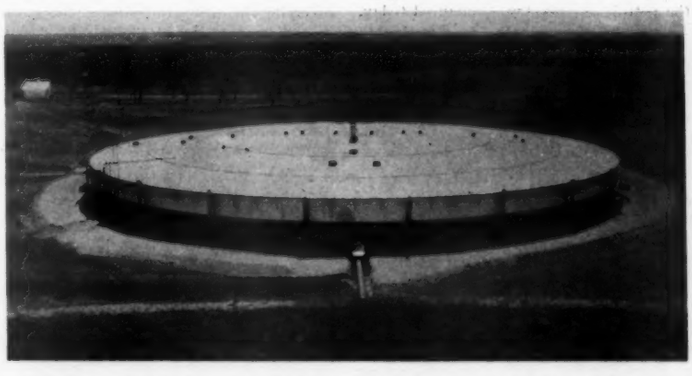


168,000 cubic feet capacity Wiggins steel balloon filled with vapor at Reagan County Purchasing Co.'s pipe line station in Big Lake field, Texas

Geology and Development of Michigan Fields Where Glacial Drift Obscures Exploration

By ROBERT C. CONINE

Michigan obscures under a thick glacial drift the clues sought by the geologist and geophysicist, and challenges the petroleum technologist with an assortment of difficulties and the promise of rich rewards. The prospector and the refiner, it becomes evident with the rise of this state to a daily potential production of 125,000 bbls., and the expansion of plants, have not found the obstacles insuperable. The glacial drift which covers nearly all of the lower peninsula of Michigan varies in thickness from 100 to 1,000 feet, and hides all beds which might serve as guides to geologists in working surface indications, and the geophysical methods used in other sections of the country with varying results have been tried without success. The only safe method of geologizing here appears to be core testing or exploratory drilling.

Drilling in all pools in the state has been generally with cable tools, although recently some experimental work has been done with rotary. Most wells require three strings of pipe—the drive pipe which is set through the drift, the Marshall string which is set through the Marshall sand, and the pay or dry string which is set on top of the pay horizon. Rapid decline in flush production has meant a short flowing life and early pumping or mechanical lift. Every conceivable type of pumping equipment is being used, including individual gas engine units, electric motors, pneumatic heads and powers.

Before 1925 no production of consequence had been discovered in the lower peninsula, but in August of that year production from the Berea sand was found at a depth of approximately 1,850 feet. The discovery well was located a short distance north of the city of Saginaw and was financed by local capital.

The field was fully developed by 1928, when 280 wells had been completed. At the close of 1933 the producers numbered 140. Initial production from these wells averaged 50 bbls. after shot, and total production from the field at the end of 1933 amounted to 1,145,000 bbls. During 1933 the field produced approximately 54,000 bbls. total or a per day well average of 1 bbl. A few wells were completed in the Traverse and Dundee limestone in this field, at depths of 2,300 feet and 2,900 feet, respectively, but this production was negligible. The deepest well drilled on the structure was 3,882 feet, which tested the Sylvania sand and was dry.

Muskegon Overdeveloped

The next discovery of any importance in Michigan was the Muskegon Pool, located in and around the city of Muskegon. The discovery well was drilled by the Dixie Oil Co. (Standard of Indiana) and was completed in December of 1927. It produced from the Traverse formation found at a depth of approximately 1,600 feet, and had an initial production of from 300 to 500 bbls. During the first six months after the discovery, 25 wells were completed, 15 of which were oil producers, 2 gas wells and 8 were dusters.

In the latter part of 1928 deeper drilling developed more prolific production in the Dundee or Monroe formation at a depth of about 2,050 feet. The field reached its peak in August of 1929 with an estimated daily production of 18,570 bbls. On account of town lot drilling many unnecessary locations were required to be drilled and the field was overdeveloped. At the end of 1933 close to 400 wells had been completed, of which 175 are still producing. The production for the pool in 1933 totaled 275,000 bbls. On January 1, 1934, the pool had produced a total of slightly more than 6,000,000 bbls.

Mount Pleasant Discovered

In 1928 the Pure Oil Co. drilled in No. 1 Root, the discovery well in the Mount Pleasant Pool. Initial production was 100 bbls. from the Dundee limestone. Development spread in all directions from the discovery well and in May of 1931 an important extension was made to the pool by the completion of the Kalamazoo Improvement Co.'s No. 1 Harnick, located several miles east of the Pure company's No. 1 Root. The Kalamazoo well had an initial production of 800 bbls., and opened what is known as the east extension of the Mount Pleasant Field. Subsequent development proved that the so-called east extension and the Mount Pleasant Pool were one producing structure. The pool reached its peak in 1932. For that year it produced 5,800,000 bbls. At the end of 1933 the Mount Pleasant Field had produced in excess of 15,000,000 bbls. Production is from the Dundee limestone found at a depth of approximately 3,500 feet.

It was during the development and production of this pool that Dow Chemical Co. and Pure Oil Co. perfected the acid treating process which has spread over the entire producing country. Acid treatment of these lime wells has greatly stimulated production and increased the ultimate yield for the pool.

Leaton Pool Operations

The Leaton Pool, 4 miles northwest of the Mount Pleasant Field, was discovered in July of 1929. This pool also produced from the Dundee found at a depth of about 3,600 feet. To January of 1934, 28 wells had been completed and had produced approximately 1,000,000 bbls. At that time 17 wells were still producing. During 1933 the pool produced about 300,000 bbls. or a daily average of 50 bbls. per well.

Vernon Oil and Gas

The Vernon Pool, 4 miles northwest of the Leaton, was discovered in April of 1930, and has produced 1,125,000 bbls. During 1933 the Vernon Pool produced more than 500,000 bbls. or a daily per well average of 40 bbls. Production of oil is from the Monroe, which lies immediately below the Dundee ordinarily, but in the Vernon Pool the Dundee is entirely removed from the top of the structure. Eight gas wells have been completed in this pool in the so-called Stray sand which lies immediately above the Marshall formation.

Porter Field Discovery

In 1931 Michigan Pacific Oil & Gas Co. drilled the discovery well in what is known as the Porter Field. This well was on the extreme southeast end of the pool, and produced from the Dundee formation found at a depth of about 3,380 feet. The north offset to this well proved to be a duster and development was discontinued in the pool for a considerable period of time.

In December of 1932 Pure Oil Co. completed its No. 1 Yost some 6 miles northwest of the Otway discovery. This well appears to be at or near the northwest end of the Porter Pool. Following completion of No. 1 Yost, development proceeded at a rapid rate and by the end of 1933 116 producing wells had been completed and production totaled more than 3,600,000 bbls. Some large wells have been completed in this field. Initials of 3,000 bbls. have been common, and one well, Pure's No. 1 Hoyt, had a rated potential of 18,000 bbls. a day. The peak potential production for the field at one time exceeded 125,000 bbls. per day, and is now rated at only 10,000 bbls. less. The decline in potential in the large wells of the pool has been steep, even with proration restrictions and curtailed production.

Hart Field Latest

The Hart Field in Oceana County, producing from the Traverse formation, was discovered by Edward Duvall and associated in the summer of 1932. It has been estimated that this pool will cover close to 300 acres, with an ultimate production of 300,000 bbls. of crude which closely approximates East Texas oil in octane rating.

Ogemaw Structure

The Ogemaw structure, one of the largest and best defined in the state, had up to the present proved somewhat of a disappointment. Some spotted Traverse production has been developed and three or four wells are now classed as important producers. Pure Oil Co.'s N. 1 Mary Fisk, is reported to have made more than 125 bbls. in 11 hours after acid treatment in Dundee encountered at about 2,700 feet.

Gas has been found in various spots in Michigan, the principal discoveries to date being in the Vernon, Clare, Broomfield and Big Rapids Pools. This gas is found in what is known as the "Stray" sand. Other small oil pools have been developed or are in the process of development.

The principal purchasers of crude in Michigan are the Pure and the Simrall companies which have pipe lines serving the principal producing areas outside of Muskegon where the crude is mostly refined locally.

Among the active operators in the state are the Pure, Sun, Gordon, Mellon-Pollock, Roosevelt, Stork, McClanahan, Dokenva, Daily, Smith and Michigan Pacific oil companies. Individual operators most active are Fred Turner, Jim Graves, Dr. V. R. D. Kirkham, Ed Stewart, Hunter and Howard Atha, George Talbot and Lupher & Cline.

Administrator's Report on Crude Stocks

Stocks of domestic and foreign crude petroleum at the close of the week ended April 7 totaled 341,966,000 bbls., an increase of 603,000 bbls. over the total of 341,363,000 bbls. on hand at the end of the preceding week, Harold L. Ickes, Secretary of the Interior and administrator of the code of fair competition for the petroleum industry, announced today. This increase, which marked the fourth successive gain in crude oil stocks, comprised an increase in stocks of domestic crude amounting to 327,000 bbls. and an increase in stocks of foreign crude oil of 276,000 bbls.

Current reports of the industry indicate that crude oil production and runs to stills remained virtually stationary during the week ended April 7 as compared with the preceding week, but that imports of crude oil increased materially. The approximate daily average balance of crude oil during the week ended April 7 was as follows (barrels): Production, 2,400,000; imports, 125,000, equals runs to stills, 2,245,000; increase in stocks, 86,000; exports, fuel, losses, etc., 194,000.

CRUDE PETROLEUM STOCKS REPORTED BY COMPANIES HOLDING 100,000 BBLS. OR MORE

Grade of crude oil—	Stocks held by reporting companies Mar. 31, 1934 (bbls.)	Stocks held by reporting companies Apr. 7, 1934 (bbls.)	Change from Mar. 31, 1934 (bbls.)
Pennsylvania Grade	4,911,000	4,978,000	+67,000
Other Appalachian, including Ky.	1,353,000	1,346,000	—7,000
Lima-N. E. Indiana-Michigan	1,595,000	1,594,000	—1,000
Illinois-S. W. Indiana	11,239,000	11,176,000	—63,000
N. Louisiana and Arkansas	11,276,000	11,166,000	—110,000
West Texas and S. E. New Mexico	29,846,000	30,309,000	+463,000
East Texas	44,180,000	43,800,000	—380,000
Other Mid-Continent	155,899,000	156,253,000	+354,000
Gulf Coast	15,504,000	15,445,000	—59,000
Rocky Mountain	27,619,000	27,610,000	—9,000
California	34,391,000	34,463,000	+72,000
Total domestic crude	337,813,000	338,140,000	+327,000
Foreign crude	3,550,000	3,826,000	+276,000
Total crude	341,363,000	341,966,000	+603,000

MICHIGAN CONTRACTORS ELECT

MUSKEGON, Mich., Apr. 16.—New officers were elected last week by the drilling contractors division of the Oil and Gas Association of Michigan: President, John Goll, of Goll, Graves & Mechling, Saginaw; first vice president, William Cline, of the Lumber Drilling Co.; second vice president, Edward Stewart; secretary, Henry G. Hunt, and treasurer, Robert W. Atha. The executive committee includes Messrs. Goll, Cline, Atha, J. C. Arthurs and E. M. Shields of Mount Pleasant. J. W. McIntosh was named chairman with Charles Bell, Harry Friesner, Emil C. Feidler and Messrs. Atha and Goll as members to be recommended to the regional committee to act as a drilling practices committee for Michigan.

OVER-CHARGE ON EARTH

WASHINGTON, D. C., Apr. 14.—Payment of reparations amounting to $37,796 to the Barnsdall refineries by 12 railroads whose rates on carloads of fuller's earth shipped to Barnsdall from points in Georgia and Florida were found unreasonable was ordered by the Interstate Commerce Commission.

The reparations must be paid on or before May 26, with 6 per cent interest from the time of payment by Barnsdall of charges by the railway.

Sweet Lake Field in Coastal Louisiana Is Good Example of Maritime Drilling Operations

By NEIL WILLIAMS
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Apr. 16. — Development of deep producing horizons which Pure Oil Co. has been carrying on in the middle of Sweet Lake, a body of open water in the marshes of Cameron Parish, Louisiana, has been one of the most interesting projects which has ever been undertaken on the Gulf Coast. There, in somewhat isolation and under typical maritime conditions, a conservative, yet consistent drilling program has been followed out in the proving up of lower and lower sands, the outcome of which has been the establishment of a field of considerable, although so far indeterminable, potentialities.

Sweet Lake has always been known as a field of deep producing wells. The discovery well in a sand at 5,897 feet at the time of its completion in October, 1926, was the deepest well on the Gulf Coast. The distinction of having the deepest wells was retained by the field until June, 1929, when a well was brought in at Jennings, La., from a sand at a depth of 7,294 feet.

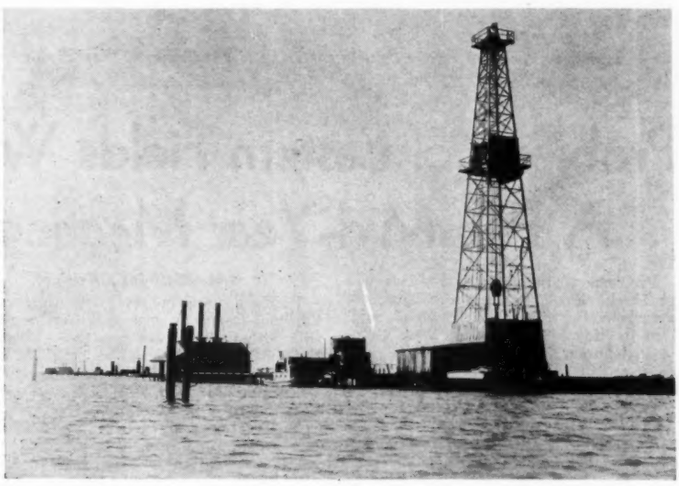
Since then, however, production has been proved at Sweet Lake in various horizons down to as low as 7,400 feet with the shallowest well at this time being 5,660 feet. Five wells now are on production with a daily yield under restricted output of around 1,000 to 1,100 bbls. Although development has been limited and production curtailed, total recovery of the field today has been in the neighborhood of 2,130,000 bbls.

Heavy Equipment Used

Pure Oil Co. at this time is drilling its twelfth test. The latest two completions, Nos. 10 and 11, the most prolific and consistent of any of the wells, are producing from a 7,400-foot horizon, to which depth it is expected that No. 12 will be taken. The equipment on these tests, however, is capable of going at least to 10,000 feet, barring unforeseen difficulties, as only the heaviest and largest machinery has been provided and the entire setup has been put in with a view to drilling to any necessary depth. The deepest level yet reached at Sweet Lake, 8,070 feet, was by No. 11. Heaving shale was encountered there and the well was plugged back to the 7,400-foot sand, which had been passed up in an effort of the operators to explore the lower horizons.

Sweet Lake in itself is a body of fresh water approximately 2 miles long by a mile wide, being somewhat oval in shape. It is located some 10 miles inland from the Gulf of Mexico, about 18 miles south of Lake Charles. The entire country around it and between it and the Gulf also is low and marshy and mostly under shallow water. The nearest accessible dry land to the lake is at a point about 2½ miles north, where Pure Oil Co. has established its base of operations and its camp. Access to the lake is only by boat through a canal which was dredged from the base of operations.

The lake proper was formed about 80 years ago by a large marsh fire which burned out a deposit of peat, leaving a basin varying in depth from 7 to 10 feet which has filled with fresh water. The field and drilling operations have been confined to a comparatively small area about a half mile out and in turn about 3 miles from the company's base. The fee ownership of the lake, which was a part of a large rice plantation, at the beginning of oil development was in the name of the Sweet Lake Land & Oil Co. but more recently this title has been acquired by the Yount Lee Oil Co.



Pure Oil Co.'s No. 12 Yount Lee, deep test, now drilling at Sweet Lake, Cameron Parish, La., showing portion of field with derrick removed

Many Problems Involved

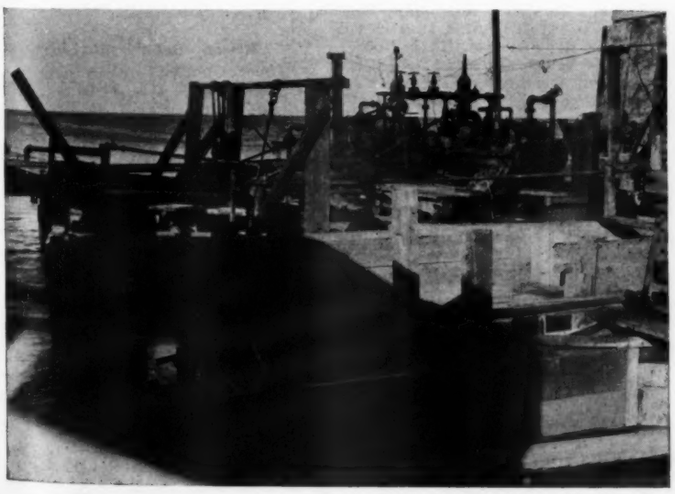
Carrying on oil field development under such conditions as faced by the Pure Oil Co. in Sweet Lake involves a number of problems, namely, the setting up and handling of drilling and production equipment in a lake bed, the supplying of fuel, drilling mud, etc.; transportation of equipment, supplies and materials, and the disposal of production.

In many respects, transportation is not a problem under such conditions and particularly is this true at Sweet Lake. These operations are always accessible by boat and barge, whereas in many dry land fields, transportation of equipment and supplies by trucks and cars might be handicapped by weather and road conditions. Sweet Lake adjoins and is connected with the Intercoastal Canal, an inland deep water channel extending entirely across southern Louisiana and into Texas, and through this is readily accessible by barge to Lake Charles, Orange and Beaumont. Barges, by reason of their size and load capacity, facilitate the shipment and movement of equipment and pipe materials, especially heavy and large equipment, and at somewhat lower operating cost.

Smaller, miscellaneous supplies and items can be trucked to Pure Oil Co.'s warehouse at its base of operations north of the lake and then hauled by boat to the well locations. The only objection to boat and barge hauling is the provision for adequate facilities, the initial investment of boats and barges being very heavy. However, the upkeep and depreciation of these is considerably less than for trucks and this with the larger load capacity and saving time in handling offsets much of the investment cost.

Full Fleet of Boats

Pure Oil Co. maintains a full fleet of boats at Sweet Lake, including small utility launches, used both for the hauling of small equipment and supplies and the transportation of the men back and forth from work, barges, two boats and a large house boat. The house boat is usde particularly for officials who visit the field and is available for those who may be required in cases of emergencies to remain over night at well locations. This boat is equipped with every modern facility, including lounging and recreation room, bed rooms, kitchen and dining rooms, running water, shower baths, electric lights and gas heating and cooking



Troughs for the collection and return of drilling fluid from the well. Mud pumps located on platform on top. Sweet Lake Field, Cameron Parish, La.

Interior of portion of house boat provided at Sweet Lake field for use of officials and others who visit the field. The boat has every modern facility

stoves. The boat can be towed to any point and moored where electric line and gas line connections can be made at the well locations.

The chief problem of such water operations in the past has been the matter of foundations and the setting up of drilling and production equipment. Piling often is used in some fields and locations but that generally is a costly proposition and requires considerable time in putting in. At Sweet Lake, Pure Oil Co. has adopted a matting base on which the substructure is constructed. The matting consists of several layers of plank timbers laid down flat on the bed of the lake. The planks for each layer are fastened together on the surface and then lowered as one piece into the water. Such foundations are provided for the derrick and drilling machinery and also for the power plant for each outfit. Walkways which connect the various wells and operations are built in the form of piers on piling.

Characteristic of the operations at Sweet Lake is the large and heavy equipment used in drilling, and the long, big strings of pipe which are being run in the late work. This places an exceptional stress on the foundations. The problem of handling such equipment and material in a lake of 7 to 10 feet of water where room for moving about is limited can readily be appreciated. Barge deck space, however, is available when needed, and in cementing jobs, the cementing trucks are operated from the barge moored securely to the derrick foundation.

Typical of the big strings of pipe which probably will have to be run in deep development at Sweet Lake is that which was successfully seated and cemented in No. 11 Sweet Lake, the test drilled just previous to the present test. In that 8⅝-inch O.D., 43-pound A.P.I. special alloy Grade D pipe was run to 7,333 feet. In view of the much greater depths which no doubt will be reached even longer and heavier strings may be required. Up to the time of the above casing job, it held a record on the coast for casing that size.

In its latest operation, Pure Oil Co. at Sweet Lake is starting with the largest holes ever drilled before on the Gulf Coast. In these 28-inch bits are being used for the surface drilling, and in the present test 90 feet of 24-inch pipe was run. Representative of the size of hole carried is the fact that in this test 18⅝-inch casing was cemented at 1,061 feet and 13⅜-inch casing at 4,523 feet. Open hole has been carried since to the present depth of 5,908 feet.

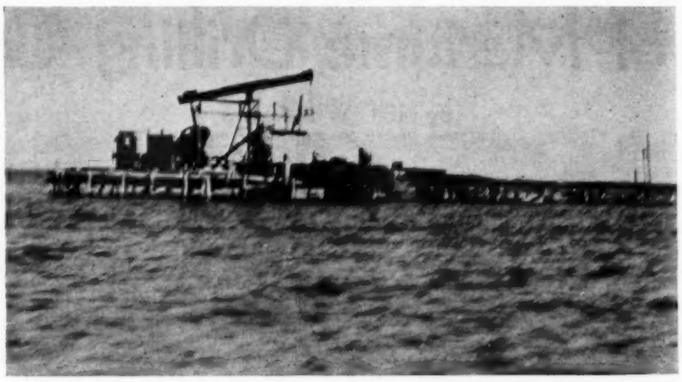
The experience which Pure Oil Co. met in attempting to deepen some of its old wells, which were drilled with comparatively small holes, led to the adoption by the company of the practice of starting all tests with as large hole as possible. This is expected to facilitate the drilling to greater depths with hole sufficient in size to work in.

Standard Setup

The standard setup at Sweet Lake includes three boilers to supply power for drilling operations. Gas is burned for fuel, the supply coming from adjoining wells through lines strung along the runways and which connect all the wells. Water for the boilers is pumped from the lake, the water being fresh.

Providing an adequate supply of drilling mud was a problem which has been faced. This mud has to be mixed at the company's base of operations some 3 miles distant and brought to the well location by barge. A 500-gallon reserve tank for mud storage is a part of the equipment on each setup. Every precaution has been taken to conserve as much of the returns as possible, the discharge being into a system of wooden troughs built on piling.

In handling of the production, the oil, and whatever water there is, is pumped together from the field through a 4-inch line to the base of operations, a distance of 3 miles. There a trating plant has been provided for the settling out of the water. It is impossible to do this out in the field due to the fact that the lake consists of fresh water used for rice irrigation and there would be no means of disposal of salt water. A line is strung along the bottom of the lake as far as the canal and then runs along the bank of the 2½-mile canal to the treating plant, where storage is available. The water treated out is pumped into a separate salt water canal.



Pumping unit set up on well in Sweet Lake field, Cameron Parish, La.

The oil is pumped back to a barge loading dock located on the Intercoastal Canal which passes just south of Sweet Lake, where barges take on the oil for shipment to Pure Oil Co.'s refinery at Smiths Bluff, just south of Beaumont. The line, which connects the storage at the base of operations with the docks, consists of a 6-inch line strung along the canal bank and across the bottom of the lake. The dock has capacity for two barges at a time.

A gas line also has been laid from the wells in the lake to the camp to supply fuel requirements there.

Sweet Lake belongs to that type of fields on the Gulf Coast in which no dome formation has been found, although the producing formations may overlay a very deeply seated dome. Other such fields have been Goose Creek and Orange and possibly several of the other newer deeply seated fields. Pure Oil Co. controls the entire known and expected producing area and has been carrying on development since early in 1926 when the first well was started, it resulting in a gas blowout and crater while drilling at 4,502 feet.

Problems of Eastern Fields Will Be Feature of A.P.I. Mid-Year Meeting in Pittsburgh

Problems of the eastern oil fields will be in the limelight when the American Petroleum Institute holds its fourth mid-year meeting in the William Penn Hotel at Pittsburgh, May 22, 23 and 24. The sessions will be the first held in the East since the mid-year sessions of the divisions of production, refining and marketing of the Institute were begun in 1931.

About 30 committees of the Institute are scheduled to hold sessions on Tuesday, May 22, preliminary to the division sessions on Wednesday and Thursday. One general Institute session will be held Wednesday afternoon, and there will be sessions of the board of directors and of the American petroleum industries committee. The general session will be largely in the nature of a stock taking of Institute affairs, with Axtell J. Byles, president; W. R. Boyd, Jr., executive vice president, and Baird H. Markham, director of the American petroleum industries committee, scheduled as speakers.

The division of production will hold four sessions; the division of refining three, and the division of marketing two during the meeting. Eastern district topics will concern the producing division in sessions Wednesday morning and Thursday morning. A session Wednesday evening will be devoted to metallurgy and corrosion of oil field equipment, with a final session Thursday afternoon to discuss general topics.

Five papers are to be presented in a session dealing with refinery problems Wednesday morning, and two sessions Thursday morning and afternoon will be devoted to automotive and refinery problems, with seven papers scheduled.

Details of a program of the division of marketing to be devoted entirely to the code of fair competition for the petroleum industry have not been worked out. The code session will be held Wednesday morning. A final session of the marketing division on Thursday morning will be concerned with general problems of marketing.

PRELIMINARY PROGRAM

Wednesday, May 23, 1934

9:30 a.m.—Production Division

Eastern district topics (seventeenth floor, Major Ballroom): Deep Sand Development in the Eastern Area: Geology—C. E. Fralich, Torrey, Fralich & Simmons, Inc. Operating and Development—F. E. Eckert, Hanley & Bird. Motion Picture—National Tube Co.

10 a.m.—Refining Division

Refinery problems (seventeenth floor, Cardinal Room): Continuous Treating of Oils with Centrifugal Separation—Robert D. Walker, DeLaval Separator Co. The Use of the Centrifuge in Acid Treating Petroleum Stocks—Leo D. Jones, Sharples Specialty Co. The Maxam Method of Acid Treatment of Heavy Lubricating Oil—F. M. Tomlinson, Maxam Co. Percolation Filtration in the Light of Recent Process Developments—Stanard R. Funsten, Attapulgus Clay Co. Economies in Refinery Operation in Relationship to A.P.I. Standardization Program—Arthur E. Pew, Jr., Sun Oil Co.

10 a.m.—Marketing Division

The "Code." (Seventeeth floor, Silver Room). Program to be announced.

2 p.m.—General Session

Production, refining, and marketing (seventeeth floor, Major Ballroom): Address—Axtell J. Byles, American Petroleum Institute. Address—W. R. Boyd, Jr., American Petroleum Institute. Address—Baird H. Markham, American Petroleum Industries Committee.

8 p.m.—Production Division

Metallurgy and corrosion of oil field equipment (seventeenth floor, Major Ballroom): Use of Alloy Cast Iron in Oil Production Equipment—O. B. J. Frazier and J. S. Vanick, International Nickel Co. Recent Improvements in Manufacturing Steel for Oil Field Equipment—C. H. Herty, Jr., director of research, Metallurgical Advisory Board. Magnetic Methods of Detecting Flaws and Fatigue Failures in Iron and Steel—A. V. DeForest, consulting metallurgical engineer. Special Metals in Oil Field Practice—P. H. Brace, Westinghouse Electric & Manufacturing Co.

Thursday, May 24

9:30 a.m.—Production Division

Eastern district topics (seventeenth floor, Major Ballroom): Care and Nursing of Small Wells East of the Mississippi: Oil Properties, speaker to be announced. Gas Properties—J. H. Newlon, Philadelphia Co. Developments in Eastern Production Practice: Water Flooding—J. B. McClintock, Sloan & Zook Companies. Air and Gas Drives—C. C. Hogg, National Petroleum Co. Chemical Treatment, speaker to be announced.

10 a.m.—Refining Division

Automotive problems (seventeenth floor, Cardinal Room): Economic Discussion of Methods of Obtaining High Octane Gasoline, speaker to be announced. The Relation of Fuel Octane Number and Engine Compression Ratio—Earl Bartholomew and C. D. Hawley, Ethyl Gasoline Corp. Conservation of Volatile Gasoline Materials—William Mendius and Walter Ainsley, Sinclair Refining Co. Butane—A Waste Asset of the Petroleum Industry—R. C. Alden, Phillips Petroleum Co.

10 a.m.—Marketing Division

Marketing problems (seventeenth floor, Silver Room): Training Lubrication Salesmen—W. J. Gerwe, Vacuum Oil Co. What Does a Customer Think of Us?—E. L. Barringer, National Petroleum News. Subject and speaker to be announced.

2 p.m.—Production Division

General topics (seventeenth floor Major Ballroom): Primary Well Spacing—John R. Suman, Humble Oil & Refining Co. Lower Lifting Costs Through Proper Pumping Methods—Herbert Stark, Honolulu Consolidated Oil Corp., and C. L. Moore, Chanslor-Canfield-Midway Oil Co. Bottom Hole Pressure Conditions in Kettleman Hills—G. V. D. Marx, Standard Oil Co. of California.

2 p.m.—Refining Division

Refinery problems (seventeenth floor, Cardinal Room): The Problem of Viscosity of Lubricants—M. R. Fenske and W. B. McCluer, Pennsylvania State College. The Economics of Solvent Extraction of Lubricating Oils—R. E. Wilson, Standard Oil Co. (Indiana), and P. C. Keith, M. W. Kellogg Co. The Distinction Between Heavy Fuels for Use in Spark and Compression Ignition Engines—James B. Fisher, Waukesha Motor Co.

Committee Meetings

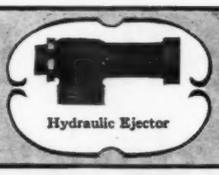
Following is a tentative list of the committee meetings to be held during the fourth midyear meeting. Members of committees will be notified of the time and place of meetings.

Production Division Committees

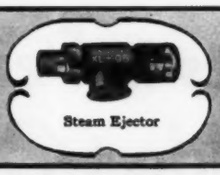
Division of Production, General Committee: Chairman, Charles F. Roeser; secretary, C. A. Young.

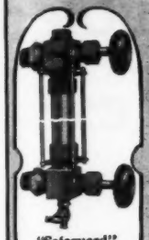
Advisory Committee on Fundamental Research on Occurrence and Recovery of

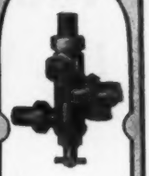
(Continued on Page 49)


Hydraulic Ejector

PENBERTHY PRODUCTS

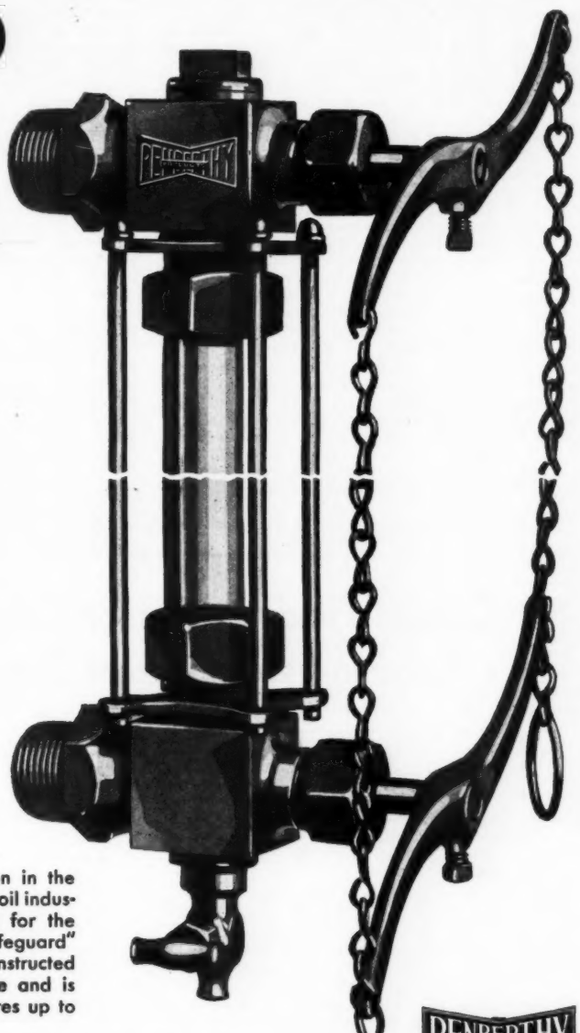

Steam Ejector


"Safeguard" Automatic Liquid Level Gage


Automatic Injector

"SAFEGUARD"

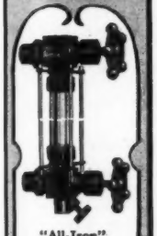
LIQUID LEVEL GAGE



ALL ★ THAT THE NAME IMPLIES

"Navy Type" Liquid Level Gage

Gas Engine Lubricator


"All-Iron" Automatic Liquid Level Gage

Snap Lever Oiler

SAFETY is a primary consideration in the selection of equipment for the oil industry—that is an important reason for the popularity of the Penberthy "Safeguard" Liquid Level Gage. It is ruggedly constructed of high grade steam metal bronze and is recommended for working pressures up to 300 pounds.

Operation of the Penberthy "Safeguard" Liquid Level Gage is automatic and dependable. When the glass is broken loss of liquid is prevented by the immediate and positive closing of ball check valves in both upper and lower bodies. The stop valves may then be safely closed and a new glass inserted.

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Activities in Permian Basin More Than Doubled by Wildcat Operations and Ordovician Tests

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 14.—A glance at the West Texas drilling report will immediately give a true and definite picture of renewed activities in that district. Comparing the present report with one about six months ago will show that activities in the Permian Basin have more than doubled, and much of this new activity is furnished by the wildcatter, a species which has been almost extinct in the district during the past three years. But he has again returned to the 49 counties embracing an area of hundreds of square miles, many of which have never had the pleasure of hearing the chug of a mud hog or the pounding of cable tools on the caliche surface as a test was spudded.

Major companies and independents alike have become aggressive in purchasing leases and royalties and drilling wildcat, semiwildcat and field tests. Several hundred thousand acres of leases in blocks and checkerboarded, were relinquished by companies and independents from 1929 up to about six months ago, but since that time the situation has completely changed and many of the relinquished leases have again been leased, royalties in many areas also bringing good prices, while blocks held for some time are kept in force by the companies paying rentals.

Six months ago there were only 70 active tests going down in the district, the majority of which were field tests. Today there are in the neighborhood of 150 tests tests drilling or preparing to be drilled. Many of these are wildcats, or in areas that have not heard the rumble of drilling machinery for a least three years, such as Andrews County where four tests are now being drilled, two by the Humble Oil & Refining Co. which purchased considerable acreage around the old Deep Rock producing area.

Ward County Busy

Ward County has been a busy area all through the depression, easy and shallow drilling in the Grand Falls area inviting operations, the majority done by independents who acquired acreage from the major companies on an overriding basis. The Hutchings-O'Brien area in the northern part of the county has seen the steady drilling of acreage by the Gulf Production Co. and others during the past few years, the former company keeping two or three strings of tools, but taking its time in drilling the large block it holds in the area.

The Yates Field, Pecos County, lay dormant about three years until Harry Turner was given title to several vacancy tracts in the heart of the field and started drilling. This acreage was later purchased by the Mid-Kansas Oil & Gas Co. which company had formerly held or thought it held title to the leases, until the courts decided in favor of Turner. Mid-Kansas Oil & Gas Co. has 15 locations or drilling tests in the field, but it is believed many of these locations will not be drilled for some time.

Ordovician Tests

Nine miles west of the Yates Pool, on the White and Baker ranch, Pecos County, the Humble Oil & Refining Co. is drilling one of the three wildcat Ordovician tests now being put down in the district. It has already logged the top of that formation and is drilling below 8,700 feet. There are three other wildcats drilling in the county at the present time.

About 32 miles north of the Ordovician test in Pecos County, the Gulf Production Co. is sinking another test. It is on the Crane-Upton County line in Section 197, Block F, on the large McElroy block held by the company which extends over into Upton County. This test is below 9,550 feet and is encountering no trouble, but has not yet logged the Ordovician.

John I. Moore and others are now preparing to drill an Ordovician test on the McDowell ranch in northern Glasscock County, in Section 22, Block 34, Township 2s, T.&P. Survey. This is about 60 miles due north of the Big Lake Field, Reagan County, in which the only Ordovician producers in West Texas are found. It will be an exceptionally interesting test, as are all the Ordovician tests in the district, and several companies and independents have taken interests in the block.

The Plymouth Oil Co. has just abandoned a shallow test approximately 3 miles west of San Angelo in Tom Green County, on a block of acreage taken presumably for an Ordovician test. This shallow test was drilled for subsurface information and other tests may be drilled on the block for the same purpose before a deep test is started.

J. M. Cooper of Los Angeles is deepening the old test on the Bert Page ranch in Section 40, Block L, L.T.C.R.R. Survey, Schleicher County, and is to carry it to the Ordovician. George T. Wilson formerly drilled this test to a total depth of 5,053 feet before giving it up. This too will be an interesting deep test for the district.

An Ordovician test is expected to be drilled on a block in Mitchell in the future, and other deep tests are rumored for the district. However, companies contemplating such deep drilling will probably await the outcome of the deep tests now drilling in order to gain further information on the formations, and to give them a better picture of the deep potentialities. The Ordovician producers in the Big Lake Field, Reagan County, produce an exceptionally high gravity oil, and companies are anxious to open pools of such oil of their own.

This deep drilling does not exclude itself from other districts, but has been extended north into the Panhandle. One deep test, located on a likely looking structure in Cottle County, has been drilled by the Darby Petroleum Co. and Merry Brothers and Perini, but the test proved a failure.

The Humble Oil & Refining Co. is preparing to drill a deep test still farther north, in Cottle County, and the showings made in the deep test near Binger, Okla., is likely to spur companies into drilling still other deep tests in the Panhandle of Texas, which is on an east-west trend with the Binger well.

One large block in Moore County, in the Panhandle district, which has already been proved for gas production, is to be given an 8,500-foot test by the owners, the Phillips Petroleum Co. Location is in Section 157, Block T-3, T.&N.O. Survey, on the Wilson ranch. Although wildcatting in the Panhandle has been practically nil during the past three years, this district is also expected to see a renewal of that activity. A block in Knox County, a county which has not had any testing for a long time, is also to have a test in the immediate future.

There are three active wildcat tests in Crane County at present scattered in the northern and western part of the County. Two wildcats are drilling in Ector County and no doubt there will be more reported within the next few months. Dawson County recently entered the active list with the first test drilling in that county in many months, and Howard County is the scene of a couple of wildcats besides the number of tests drilling in the Dodge-Denman and the Chalk Pool.

New Wildcats

But while Ordovician tests are of especial interest to those operating in the district there are many other wildcats almost as interesting. Some of these are on blocks that have been held for several years, companies deeming them worthy of yearly rentals until the best opportunity presented itself for drilling them, and until the industry warranted further wildcatting. At least 35 wildcat blocks will be drilled in the district this year due to the leases expiring and the companies desiring to test the blocks before relinquishing them. Other blocks will be taken during the year, as they have been during the first quarter, and some of these will also be tested, according to the geological or geophysical information obtained on them.

Reeves County has two new locations for wildcat tests, and besides several wells drilling in and around the McMillan Pool, there are a couple of active wildcats, with one old test being drilled deeper. This county entered the active list last year after an extension to the McMillan Pool made a good well, bringing attention to this area that had lain dormant for over two and a half years.

There are eight active tests in Winkler County, the majority being in the Scarborough, or northern part of the county.

A rig is also up for a test in Val Verde County. This will be the first test drilled in that county in over three years.

Supply companies have all been made to realize the importance of West Texas since operators and companies have been purchasing more equipment and supplies to carry on renewed activities. Acid treatment of wells in various pools in the district has also helped to change the situation.

Cayuga Field, Anderson County, Texas, Looming as Important Development

FORT WORTH, Tex., Apr. 14.—The Cayuga area in northwestern Anderson County, now proven as an oil field, is taking its place with other Woodbine sand fields in the East Texas district, and possibly ranking as second in importance. However, with an exceptionally thick sand body and a high per acre recovery estimate, the Van Field may retain second place.

The second well, Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 Wills, in the S. Edmondson Survey, approximately 1 mile northeast of the discovery well, No. 1 Edens (fee), owned by the same companies and located on a 15,000-acre block, was completed as good or a better well than the discovery. This second well cored 26 feet of sand whereas only 12 feet was cored in the discovery, the companies taking only a small section of the sand in order to keep down high gas pressure and feeling it unnecessary to core deeper. Part of the sand was cased off in both wells to hold down the gas. The discovery well was bottomed at 4,088 feet with 6 feet of sand cased off. When completed the open flow casing pressure was 1,125 pounds, which built up to 1,350 pounds. The well is now producing around 500 bbls. per day through small choke. The Texas Pipe Line Co. is transporting the oil to storage at Corsicana for the two companies.

When the discovery well first came in the oil was thick, black and of only 28.7 gravity. However, after producing almost a month the gravity has been increasing and a report from the gauger of the pipe line company said the gravity had stepped up to almost 32 degrees. The original gravity was the lowest yet found in any Woodbine sand field in the district, and those interested in the well were at a loss to explain it.

Two Other Tests Due

There are two other tests due to be completed in the field, one of which would extend the field about three quarters of a mile southeast of the discovery. The other test is a short distance northeast of the discovery, about midway between the discovery and the well completed on the Wills farm.

The Cayuga area was shot by the Geophysical Service, Inc., of Dallas during the middle of 1933. Gus Schmidt, district geologist of the Tide Water Oil Co., and R. S. McFarland, geologist for the Texas Seaboard Oil Co., supervised the reflection seismograph work. To these two geologists and the G.E.I. company goes the credit of discovering two fields within six months, the same group working out a structure in the southwestern part of the same county, on which five wells, three of which are dry gassers, have been completed. This area is now known as the Long Lake Field, and the two companies own a block of 24,000 acres covering the structure.

At least 10,000 acres are estimated good for production under the Cayuga area, according to the geophysical information worked out on a subsurface "high" underlying the block, the structure running northeast-southwest. As the field appears now the best wells will be found east of the discovery, although no wells have yet been drilled west of that well to disprove that theory. The structure is considered as having possibly 400 feet of closure and the sand thickness cannot be conjectured at this writing due to the companies drilling but a short distance into it. What the per acre recovery will be for the field cannot be estimated at this time. Other Woodbine sand fields in the district have produced as high as 40,000 bbls. per acre. The East Texas Field is estimated all the way from 10,000 to 30,000 bbls. per acre ultimate recovery, and the Van Field is estimated as high as 100,000 bbls. per acre on ac-

(Continued on Page 49)

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Five Operations Common to Rotary Drilling Need More Careful Supervision in Boring Deep Wells

By L. G. E. BIGNELL
Petroleum Engineering Editor

For several years exploration of structures that might contain oil and gas in commercial quantities has been carried on by various geophysical methods. The results have been quite variable, many new pools having been found, but a lot of other good structures contained no oil or gas. The main thing that seems to be made apparent by this geophysical work is that the oil fields of the future will be found at depths below 8,000 feet in geosynclines or basins.

Drilling of wells below 8,000 feet depth will require a better technique than now generally practiced because even the drilling costs at say $6.50 per foot, a very conservative figure, will make the hole cost more than $50,000. It is therefore going to be necessary that controlled drilling be practiced much more than in the past and speed of rotation of turntable, pressure exerted by the bit at the bottom of the hole, torque in drill stem under varying speeds and drilling conditions and slush pump pressures will all have to be watched closely. In addition it is going to be necessary to check the verticality of the hole and cut samples of rotary returns accurately to permit check of stratigraphy more closely.

The rotary drilling practice has made great forward strides in the past few years and it has practically replaced cable tools in the deeper fields. This is largely because of the reduction of costs in extra strings of casing usually required for the cable tool hole. There are still many areas, largely the extensions of old fields, where cable tools will be best suited to conditions, for example the south extension to Burbank Pool in the Osage Nation, Oklahoma, where the wells are now being drilled by cable tools.

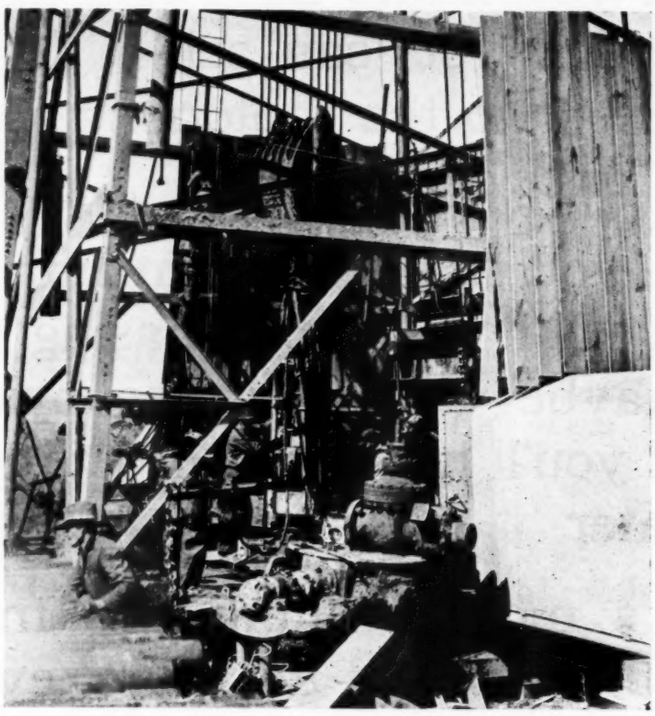
Straight Hole Drilling

A few years ago when the rotary drilling practice was comparatively new, or rather, its expansion had been so rapid as to tax the capacity of the industry to train additional drillers fast enough to handle the new outfits put to work in the rapidly developed fields, it was found that many of the holes were unusually crooked.

This knowledge of bad holes led to much study on the part of the engineers for both oil companies and manufacturers of equipment to find ways to drill straight holes. Many discussions were had at technical sessions of engineering societies and it was soon pointed out that "haste makes waste." Making hole regardless of the kind of hole drilled was the generally accepted criterion as to a driller's ability. The man on the derrick floor was not to blame for he was being judged by his employer mainly upon his ability to drive the bit into the earth and get production.

But when the wells were later tubed it was then found these hastily drilled holes were very costly to maintain. The clause now common to all drilling contracts limiting the total angle of deflection from the vertical was inserted and this usually required that at no place the hole to be more than 5 degrees out of plumb.

It was then up to the drilling contractors to instruct their men in the art of straight drilling. First the rate of drilling was decreased, the number of revolutions of the turntable were reduced. Then the pressure on the bit was decreased and pump pressures were lowered. These changes had a decided tendency to straighten the hole and to the surprise of many contractors instead of decreasing the rate of making hole, as they had felt sure such innovations would cause, the drillers were able to drill more feet of hole per hour and had fewer fishing jobs and less shut down time.



Running casing at Denver Producing and Refining Co.'s No. 1 A-Dah-Noe, in Caddo County, Oklahoma to a depth of 9,910 feet using Martin-Decker Recording Weight Indicator during operation

Crowding the bit in drilling a hole in the earth is much the same as the same technique in drilling into metal. The rate of penetration depends largely upon the substance drilled and trying to crowd the bit down only results in lost time in completing the job, or in a poor piece of work.

Recording Instruments

When it was found the pressure upon the bit should be controlled recording instruments were developed and they have been generally used in this and other countries. Weight indicators are now regularly used upon most rotary wells and this is especially true where the holes are being drilled in wildcat territory.

Special attention has been given to regulating slush pump speeds and pressures to prevent hydraulicing the hole through soft formations instead of drilling it as intended. It seems proven that the impact of the mud stream jetted out of the holes in the bit and against the formation at the bottom of the hole has often removed more material than necessary or required for making good hole.

Turntable speed or the rate of rotation of the drill pipe and the bit is another feature of modern drilling practice now receiving more consideration. In the past it has been usual for the driller to estimate the number of turns of the drill by checking speed with a regular watch, or by estimating speeds from approximately known engine speeds and speed variations through the sprocket reductions from engine to turntable.

Such rather indefinite methods are being supplanted by more accurate tachometers or speed indicators. These changes or improvements will permit much better control of drilling operations and when deep wells are to be drilled will be found indispensable. The rate of rotation has a direct influence upon the life of the bit, and this in turn determines the frequency of coming out of the hole to change bits, or to put it in another way, the amount of hole that can be made with each bit.

Engineers have been studying the various phases of this problem for some time and all drill bit manufacturers make definite recommendations as to rate of rotation and pressure at face of bit. If these recommendations are followed better results are usually secured. But without some definite means of knowing the revolutions of the turntable all the time it is not an easy matter to follow manufacturer's recommendations in this particular.

Drill Pipe Torque

It has long been known that twist-offs occurred when too much force was exerted in turning the drill pipe while it was held or partially held at some place in the hole. This turning effect is expressed in engineering terminology as "torque" but for purposes of general description it may be called "twist" and the effect will be the same if uncontrolled.

In all types of machines where a turning motion is imparted to any shaft or part there are certain effects produced in the metal making up the part that can be destructive if not properly controlled. This is particularly true in rotary drilling and while the manufacturers of drill pipe have made great progress in the metallurgy of steel for this purpose it is still possible to cause much damage to drill pipe by improper use.

If the great ratio of slenderness of the drill pipe is considered it is really remarkable that so much power can be delivered through a hollow rod of steel several thousand feet long. If a 6-inch diameter pipe is 1,000 feet long the ratio of slenderness is in the magnitude of 2,000 to 1, that is, a comparison of diameter in inches to length in inches. Now consider a drill stem 4½-inches in diameter and 10,000 feet or 120,000 inches long, the ratio in this instance is 26,666 to 1. And yet this long slender tube of steel is required to turn a drill bit nearly 2 miles in the earth's crust and crush hard rock formations, and actually has done this so many times that it is no longer a novelty.

However, the operator is now realizing that too little has been known about the torque set up in this drill stem in such work and new recording instruments to give this information at all times are now being placed upon the market.

Casing Deep Hole

At the deep test of the Denver Producing & Refining Co. in Caddo County, Oklahoma, known as No. 1 A-dah-noe the longest string of 6⅝-inch 26.2-pound casing was run in March and the record from the Martin-Decker weight indicator during that period is given below.

Number joints	Length feet	Readings weight	Total load ten 1⅛-in. csg. lines	Tare weight pounds	Net load of pipe pounds	Dead weight calculated in air, lbs.	Dead weight calculated in 11-lb. mud
70	2,275	*20.0	58,320	30,090	28,320	59,600	49,500
100	3,025	*29.0	92,390	30,090	62,300	79,250	66,000
150	4,535	*39.0	132,980	30,090	102,890	118,900	99,000
175	5,290	*46.0	163,040	30,090	132,950	138,800	115,500
225	6,810	*54.0	199,050	30,090	168,960	178,500	148,500
237	7,170	*58.0	217,700	30,090	187,610	187,800	156,000
275	8,320	*61.0	231,970	30,090	201,880	218,000	181,000
275	8,320	†64.0	246,490	30,090	216,400	.....	.....
290	8,775	*62.5	239,200	30,090	209,110	230,000	191,100
303	9,100	*63.0	241,600	30,090	211,530	240,000	201,000
321	9,710	*64.0	246,490	30,090	216,400	254,500	213,000
321	9,710	†72.0	286,390	30,090	256,300	254,500	.....
328	9,920	*64.0	246,490	30,090	216,400	260,000	216,000
328	9,920	‡80.0	327,950	30,090	297,860	.....	.....

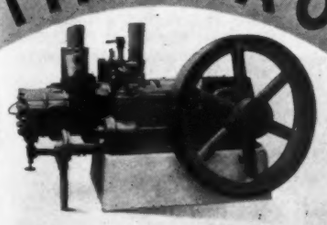
*Running pipe. †Pickup on pipe. ‡Pipe stuck at bottom of hole.

This table furnishes some interesting statistics for study. The number of joints of pipe run, the length of the string, the indicator card readings are all matters of check and recheck. The casing blocks were strung with ten 1⅛-inch wire lines and the fourth column is taken from a table prepared by Martin-Decker Corp., and furnished with the indicators. Column 5, "Tare weight," is the dead load made up of lines, casing block and ele-

(Continued on Page 88)

EASILY THE FINEST 40 H.P. PUMPING ENGINE TODAY

TYPE GAO



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YOU naturally expect a COOPER-BESSEMER engine to perform better and last longer. This engine does. Ask any pumper who is operating a Type GAO. He will tell you that it starts easily by hand . . . that the oversize Timken main roller bearings need no attention . . . that breakage is eliminated by the solid main frame, die-forged crankshaft, drop-forged connecting rod.

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NEWS FROM FOREIGN LANDS

MEXICO

Crude oil production operations in Mexico are more active than a year ago, a condition brought about by a larger refinery demand and better prices at the wells. Completions so far reported have been within the proven fields although several important extensions and wildcat tests are drilling.

In January 10 wells were completed, 6 of which were producers and 4 dry holes. The producing wells had an initial production of approximately 5,000 bbls. daily. Four of the producing wells were in the Panuco area and one each in Tonala and El Plan. In February, 10 wells were reported completed only 3 of which were producers with an initial production of 900 bbls. daily.

In the heavy oil pools, 585 wells were completed with a January output of 986,655 bbls. and in the light oil pools 458 wells were completed with a January output of 2,127,052 bbls. Total completions, 1,043 wells; total production 3,113,707 bbls.

GREAT BRITAIN

The upward trend in consumption of petroleum products which was apparent in the United Kingdom last year continued the first two months of this year, according to official government reports. The United Kingdom is not a producer of crude petroleum in commercial quantities so that imports constitute an accurate gauge of domestic requirements. For the first two months of this year imports into the United Kingdom totaled 412,922,000 imperial gallons, an increase of 13 per cent over the 364,996,000-gallon total for the same period in 1933.

The imports of all the principal products, including crude oil, increased as shown in the following table (data in imperial gallons):

	Jan. and Feb. 1934	Jan. and Feb. 1933
Gasoline	162,958,000	150,082,000
Kerosene	46,502,000	32,263,000
Lubricating oil	17,971,000	11,367,000
Gas oil	21,920,000	18,536,000
Fuel oil	93,505,000	89,706,000
Other oils	4,180,000	1,799,000
Crude oil	65,886,000	61,243,000

In regard to the sources of supply for these imports, the outstanding development the first two months of this year was the increase in shipments from the United States, Dutch West Indies and Mexico with decreases in purchases from Rumania, Russia and some of the other countries which formerly were large suppliers of petroleum products for the United Kingdom.

In the case of gasoline, shipments from Dutch West Indies, coming largely from Venezuela refineries of the Shell and Pan American (Standard of New Jersey), totaled 76,034,000 imperial gallons the first two months of this year. This accounts for almost 50 per cent of the total gasoline imports. Shipments from the United States, which ranks second as a supplier in the case of gasoline, increased from 18,296,000 imperial gallons the first two months of last year to 21,171,000 gallons for the same period this year. Mexico, the fore part of last year of no importance in the motor fuel markets of the United Kingdom, shipped 11,255,000 gallons the first two months of this year.

Gasoline shipments from Persia decreased in the case of gasoline, but kerosene imports increased. Imports from Russia, which decreased rapidly last year, again declined the first two months of this year. The following table gives the imports of the principal products into Great Britain for the first two months of 1934 and 1933 (data in imperial gallons):

	Jan. and Feb. 1934	Jan. and Feb. 1933
Gasoline		
Dutch West Indies	76,034,000	64,379,000
United States	21,171,000	18,296,000
Persia	16,585,000	21,070,000
Mexico	11,255,000	1,915,000
Rumania	10,689,000	17,784,000
Russian	7,285,000	12,365,000
Dutch East Indies	6,349,000	5,747,000
Other countries	6,287,000	7,153,000
Kerosene		
United States	15,475,000	3,335,000
Persia	15,170,000	9,815,000
Rumania	7,554,000	8,815,000
Mexico	2,867,000	2,452,000
Russia	2,181,000	4,707,000
Fuel Oil		
Dutch West Indies	42,770,000	45,642,000
Mexico	19,019,000	19,513,000
Persia	10,839,000	12,998,000
United States	4,997,000	2,312,000
British West Indies	8,449,000	2,731,000
Rumania	4,426,000	2,519,000
Russia	828,000	1,519,000

Another effort is to be made to find oil in commercial quantities in Great Britain. With the sponsorship of government officials legislation is to be introduced in the House of Commons which will give certain concessions to private interests who carry on the exploration work.

It is said that the new interest in drilling is based on recent geological surveys including geophysical testing which have indicated the presence of oil bearing structures. Several tests have been made on the British Isles but no oil in substantial quantities has been found.

In the event oil is found the properties will revert to the state and will be developed by the government. This policy is to be pursued in order to conserve the supply for state uses including national defense. The rights of the owners will be compensated for on a liberal basis.

SPAIN

The Texas Co. has started deliveries on its contract with the Spanish Petroleum Monopoly. The contract covers the delivery of approximately 500,000 bbls. of gasoline. Reports from Spain state that the monopoly has reduced its takings from the refinery of Compania Espanola de Petroleo S.A., located at Santa Cruze de Tenerife, Canary Island. The refinery has a rated crude oil capacity of 5,000 bbls. daily with cracking facilities. The Monopoly in the past has been a large buyer of Russian petroleum products.

U. S. S. R.

The Amtorg Trading Corp., the American representative of the U.S.S.R., will not act through intermediaries in commercial transactions, according to an announcement of the past week by the American-Russian Chamber of Commerce. The announcement, which was made in connection with negotiations under way to purchase equipment from American manufacturers, said in part:

"The Amtorg Trading Corp. has no connection whatsoever with any individuals or organizations offering their services as intermediaries. The fixed policy of the Amtorg Trading Corp. has always been to deal directly with American manufacturers and importers of Soviet products without the intervention of gobetweens of any character, and it will not transact any business through intermediaries.

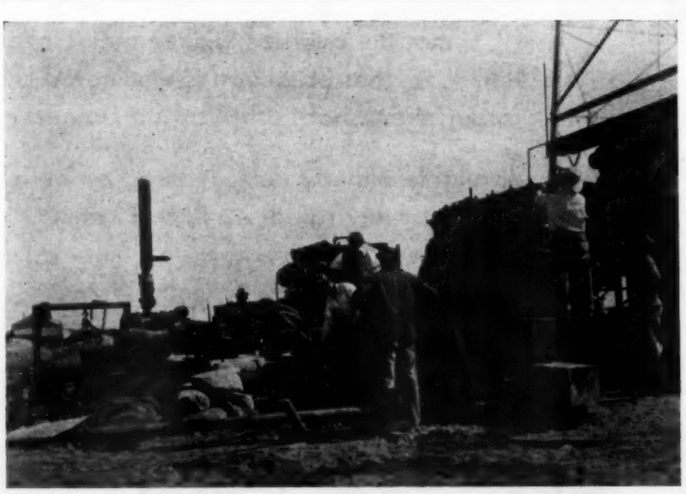
"The Amtorg Trading Corp. (with the exception of the All-Russian Textile Syndicate, Inc., which represents the textile industry of the Soviet Union) is the sole representative of import and export organizations of the Soviet Union and is alone authorized by them to consummate purchases and sales in this country.

"The intervention of intermediaries in any transactions of this corporation is not only unnecessary, but would defeat its own purpose.

"We take the liberty to suggest that the utmost care be taken to investigate the authority of any individuals or organizations which purport to have indirect connection with the Amtorg Trading Corp. or commercial organizations or governmental departments of the Soviet Union or who represent themselves as having some special influence in bringing about the successful culmination of transactions involving Soviet-American trade."

Announcement from Washington that the newly organized Export-Import Bank will not extend credit to the U.S.S.R. until a settlement has been agreed upon between the two governments covering the debts of the Kerensky regime to the United States may delay trading arrangements which are known to be under way. The tentative agreements are said to include the purchase of oil field and refinery equipment and the purchase of Russian oils by American companies. The following resolution was adopted and made public last week by the board of trustees of the Export-Import Bank:

"It is the sense of the board of trustees of this corporation that no actual credit transaction with the Soviet government shall be undertaken unless and until that government shall submit to the President of the United States an acceptable agreement respecting the payment of the Russian indebtedness to the Government of the United States and its nationals."



Diesel engine installation at rig of Mexican Gulf Oil Co., Camaron, Mexico

FRANCE

With all the new French refineries operating at least on a part time basis, the companies operating these plants are now in the market for increased supplies of crude oil. The crude oil at present is coming from all of the principal producing countries with four countries—the United States, Venezuela, Persia and Netherland India—supplying approximately 70 per cent of the total.

Some companies are anxious to make contracts covering their requirements for an entire year and several agreements have been closed on that basis. Others prefer to make purchases of spot cargoes and a number of shipments have been placed at the Gulf Coast and South American points since the first of the year. Several of the new French refineries have cracking facilities and in addition to crude oil they have been buying gas oil and distillate for cracking stocks.

How rapidly France is becoming one of the principal countries in petroleum refining facilities is shown in the data on imports for 1933 which was recently made available by the government. Crude imports in 1933 totaled 19,178,000 bbls., an increase of approximately 160 per cent when compared with the 1932 figure. Previous to 1930, France had practically no refinery facilities and imported all the petroleum products consumed. The rapid expansion has been brought by the encouragement given by the government which levies a high tax on finished gasolines that is imported but allows crude oil to be imported free.

The increase in domestic refinery output has of course reduced the purchases from foreign refineries and imports of all the principal products decreased in 1933 and showed a further decline the first two months of 1934. The following table summarizes the imports for 1933 and 1932:

	1932	1933
Crude oil—		
United States	2,442,000	7,838,000
Venezuela	1,951,000	4,975,000
Persia	1,408,000	1,604,000
Netherland India	628,000	2,133,000
Ecuador	278,000	446,000
Peru	145,000	582,000
Rumania	139,000	171,000
Russia	132,000	608,000
Colombia	112,000	658,000
Germany	9,000	.....
Mexico	.....	126,000
Other countries	.....	39,000
Total	7,244,000	19,178,000
Gasoline—		
United States	5,177,000	4,825,000
Russia	4,859,000	3,021,000
Persia	3,208,000	1,816,000
Rumania	2,998,000	3,627,000
Venezuela	395,000	0.,000
Netherland India	181,000	966,000
Belgium	148,000	111,000
Peru	146,000	154,000
Egypt	32,000	29,000
Argentina	9,000	8,000
Germany	9,000	6,000
Netherland India	.....	316,000
Other countries	92,000	19,000
Total	17,254,000	14,955,000
Kerosene—		
Rumania	496,000	238,000
United States	330,000	180,000
Persia	175,000	51,000
Venezuela	106,000	5,000
Russia	51,000	180,000
Netherland India	15,000	38,000
Other countries	15,000	46,000
Total	1,187,000	718,000

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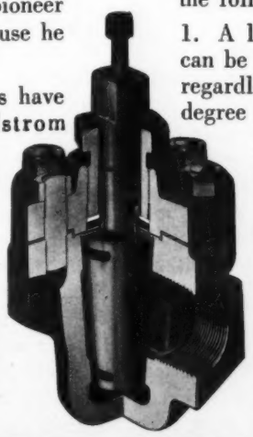
Nordstrom Plug Valves are fully protected by valid patent No. 1781821

No automobile manufacturer would claim that he was a pioneer or that he had special experience in producing automobiles because predecessors had built carriages seventy years ago. No valve manufacturer can claim he is a pioneer *lubricated* plug valve manufacturer because he built plug valves seventy years ago.

Oil, gas and chemical manufacturers have bought $15,000,000.00 worth of Nordstrom Lubricated Plug Valves in recent years, and the trend of valve sales and design has been very definitely altered. Many imitations of Nordstrom Lubricated Plug Valves have been designed in patent departments in the hope of circumventing patented features. But, even so, competing valves are made to look as much like Nordstrom valves as possible. To avoid infringement, one or more of the following features of Nordstrom Lubricated Plug Valves have been omitted or misapplied, and although several valves in the market *infringe* on Nordstrom patents, *none* of them has *all* of the following features:



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Revised Refinery Plan

Twenty-four companies representing over 80 per cent of the refining industry say that with crude production held to demand there would be no necessity for refinery control. If the supply of distress or bootleg crude was cut off the gasoline chiselers would have nothing to work with.

This was the original idea in the crude curtailment movement. But there never has been a chance to test it. It has been despair of attaining crude control that has set the industry off at the tangents of price control, marketing agreements and refinery control which have almost obscured the sound original aim without which essential we can have no stabilization.

It was natural that seeing overproduction of gasoline was as demoralizing as overproduction of crude efforts should be directed to seeking refinery control as well as crude control. The thought was that if one failed to work the other might.

As hope of crude restriction in East Texas was repeatedly postponed many turned to hope of refinery control as a short cut—but only to be again disappointed.

The first program for refinery curtailment under the code failed to work. The marketing and pooling proposals were no better. The cartel in California went on the rocks.

Then the Petroleum Administrative Board tried to patch up a plan for refinery control out of various proposals offered by factions in the industry. It was submitted by Administrator Ickes without approval for what it was worth. Apparently that was not much.

But it brought out an amended proposal sponsored by the 24 leading refinery companies, published elsewhere in this issue.

Speaking through Axtell J. Byles, President of the American Petroleum Institute, they say "they naturally view very seriously control of their refining operations, by other authority than their own." They "are definitely opposed to legislative control of refining operations and feel that such a course is entirely inconsistent with the voluntary co-operative program," which they propose instead.

Representing over 80 per cent of the refining industry they fear that the regimentation proposed in the tentative draft by the Petroleum Board might be to their disadvantage. Their proposal eliminates the division of the country into but eight districts with determination of the proper relationship between inventories and sales and of production in each district and substitutes determination of inventories and production for the country as a whole.

Instead of the district allocator establishing operating schedules for each refinery the companies propose that the national co-ordinator and the district allocators in joint session determine the operating schedule for each district.

Instead of the gasoline equalization committee of five purchasing surplus gasoline the revised proposal says the Planning and Co-ordination Committee may authorize suitable arrangements for purchase and resale of surplus gasoline.

Provision is retained for the establishment of quotas in gasoline for each refinery but the requirement of certificates in shipment is eliminated. The adjustment of quotas in the next subsequent period is retained.

The difference between the two proposals is the difference between "shall" and "may," between legislative and voluntary control, as the 24 companies indicate. If voluntary control can be made effective so much the better, but it has not been effective in crude control.

Meanwhile Administrator Ickes' bill for Federal control of the industry from the well to the filling station is supposed to be lying on President Roosevelt's desk or on the way there. With adjournment of Congress postponed there is a possibility that the Supreme Court decision in the East Texas case may first clear the air.

If Federal authority over crude control can be established, either by a favorable decision, or through the oil tax feature in the revenue bill there may be no need for the Ickes bill.

Even if the revised proposal of the refining companies is accepted by the industry and supported by an enlarged Planning and Co-ordination Committee including their representatives there is no telling how the plan will work out in practical operation, or how long it may take to make it effective, if at all.

This uncertainty may throw the industry back to the original idea of concentrating on crude control on which there is greater agreement within the industry and which offers more concrete results.

Stripper Wells

One of the speakers at the Labor Policy Board hearing on the oil code wage schedules, regarding stripper wells, revealed a superficial knowledge of the subject. He assumed that if stripper wells cannot pay the scale they are uneconomic and had better be abandoned.

This conclusion might be true applied to other businesses but the stripper well is one of the many peculiarities which separate the oil industry from all others.

Uneconomic crops may be curtailed without permanent abandonment; stripper wells cannot be. The stripper wells represent an assured oil reserve which cannot with any economic justification be thrown away.

There are 250,000 wells producing an average of a barrel a day and capable of producing it for many years. We have this oil and do not have to drill for it. If abandoned it cannot be recovered by drilling.

These wells have been and can be produced under conditions satisfactory to the producers. Their barrel a day yield cannot compete in operating cost with flush fields.

The exceptional position of the stripper well was recognized by the petroleum administration early in the discussion of the code. The economic necessity of preserving this supply of oil was clearly understood.

It would have been more consistent with his assumed position if the speaker had followed his theory to the logical conclusion that, if stripper wells are uneconomic because they do not earn enough, the proper solution would be to make the price of oil enough to justify economic operation of the stripper wells.

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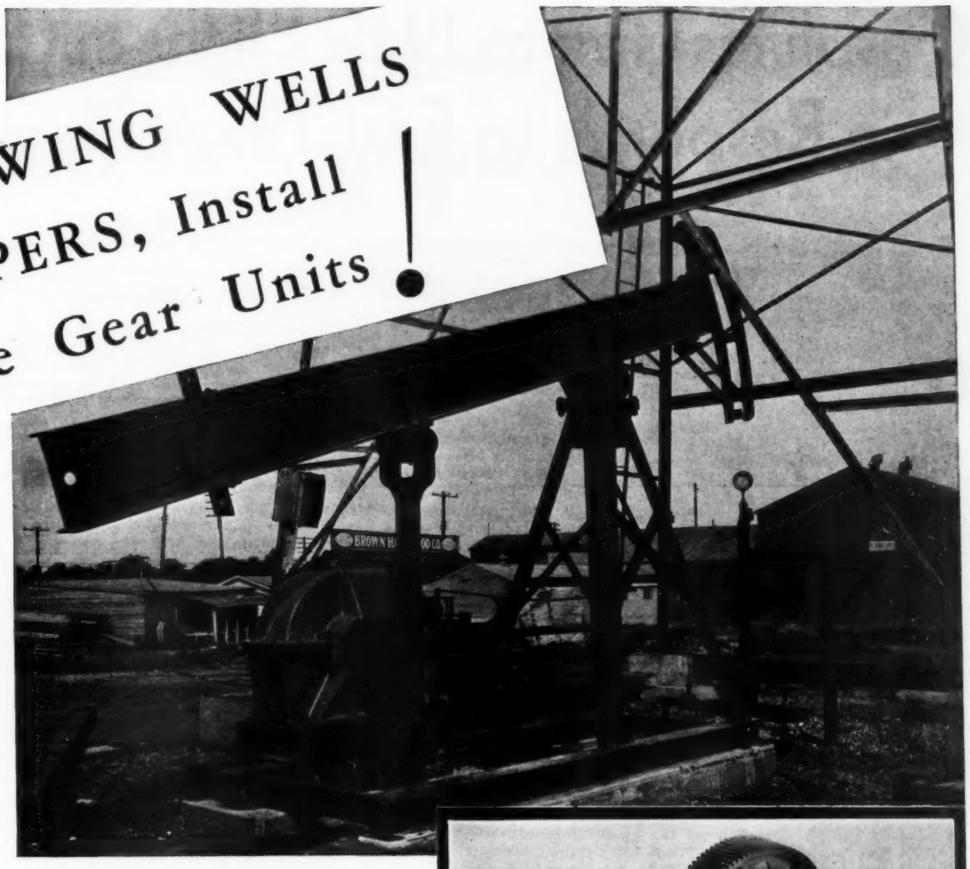
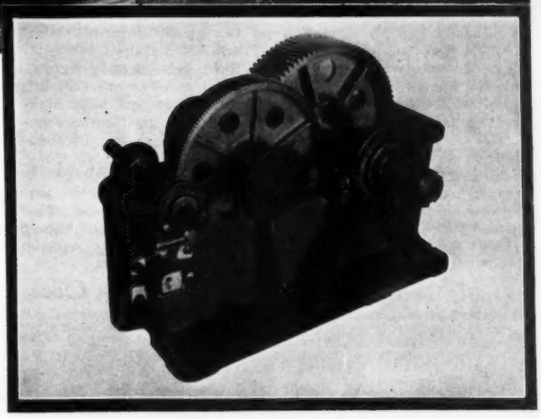
BEFORE FLOWING WELLS TURN PUMPERS, Install Westinghouse Gear Units!



Standing by for drop in rock pressure. This Westinghouse ODH-18 Gear Unit is installed in the Kilgore field, East Texas.



Westinghouse type TC Gear Unit with cover removed. This unit is arranged for twin-crank pumping. Rating: 20 horsepower at 20 strokes per minute.

BEFORE the rock pressure fails—before flush production stops and wells must go on the pump—install Westinghouse oil pumping gear units.

In the Westinghouse line you'll find a pumping unit to suit your specific pumping requirements. Whether you need a slow-speed drive for the steady pumping of light producers, or pumping equipment with sufficient power and mechanical strength to lift large volumes of oil from heavy producers . . . you'll find Westinghouse pumping units most efficient and economical.

Westinghouse type OP gear units, for example, can be used for single-well pumping or for pumping a second well through a back crank. They can be furnished for right or left-hand drive, in ratings from 20 to 45 horsepower at 20 strokes per minute. Electric motor, oil-engine or gas-engine drive may be used.

All Westinghouse gear units are sturdily constructed to give years of trouble-free service. Housings are heavily reenforced at points of stress. All gears and shafts are heat-treated. Roller bearings cut friction losses and insure permanent alignment. Quiet, efficient helical gearing is used throughout.

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OP-35 Gear Unit for Oil Pumping, with:
Weather-proof Motor
Weather-proof Control
Cog Belt Drive
Gearmotor
Explosion-resisting Motor
Model Heat Exchanger
Electric Water Cooler
Lighting Equipment

DISTRIBUTED BY

OIL WELL SUPPLY COMPANY

(SUBSIDIARY OF UNITED STATES STEEL CORPORATION)

Westinghouse

Quality workmanship guarantees every Westinghouse product

SEND FOR INFORMATION

Westinghouse Electric & Manufacturing Company
Room 2-N—East Pittsburgh, Pa.

Gentlemen: Please send information on Westinghouse Oil Well Pumping Units.

Name .....
Company .....T 85007
Position .....
Address .....O&GJ 4-19-34

Gasolines Rise to New Highs in Group 3 Market in Response to East Texas Plant Shutdowns

By T. F. SMILEY

Refinery gasolines and naturals, which began an upward movement early in April, climbed to new highs this week in the Oklahoma (Group 3) territory, the refinery product adding a quarter to three-eighths of a cent to its prices of the previous week and the naturals taking on from three-quarters of a cent to a full cent.

In neither division was the trading of the character calculated to inspire hearty confidence that the prices would hold and that better days for the refiner and distributor were at hand. Indications of really fundamental improvement were hard to find; and although the prevalent view was hopeful, conservative observers expressed belief it would require a month or more for the situation to become sufficiently clarified to enable refiners and marketers to plan their business with sureness and clear foresight.

Plant Shutdowns Credited

The higher prices for refinery gasoline were credited to plant shutdowns in East Texas rather than to rising consumption attending seasonal increase in the use of automobiles. But here, as elsewhere in the picture, the element of conjecture appeared in any attempt to analyze conditions, for the motives actuating some of the refiners in closing their plants were obscure and the duration of the shutdowns was anybody's guess. There could be no question, however, as to the shutdowns having diminished the volume of gasoline thrown on the spot market from East Texas for the time being anyway, nor as to the tonic effect of this diminution on prices. Of the 71 refineries in that district (not counting seven under construction) almost exactly 50 per cent were reported closed this week. Fifty-one out of the 71, however, were receiving deliveries of crude, putting them in position to resume operation at any time and adding to the dubious character of the whole shutdown movement.

Among other perplexing factors that must be taken into account in trying to analyze the marketing situation, that of crude production continues to befog it. The incongruity of demanding increases in crude allowables at the same time that lower inventories of gasoline are imperative is of course apparent.

Reports indicate that jobbers' stocks of gasoline are still relatively low and that there has been little buying in preparation for the season of high consumption now near at hand.

Naturals Rise Swiftly

Natural gasoline prices rose swiftly in the last week. The offerings of 26-70 were few and the quotations were said to have gone up on the strength of the demand for such as was available. Plants that have been putting stabilized material into storage were reported to be considering making 26-pound gasoline for the market at its present levels. Large quantities of stabilized gasoline are understood to have gone into storage in the last few weeks chiefly for the reason that prices available did not represent the cost of manufacture.

The price levels recorded this week promise some semblance of profit. It is recognized that this very fact is likely to invite construction of new plants and a shift from storing to marketing on the part of manufacturers already established. In view of these possibilities and others of a discouraging nature it was frankly stated by market students that there was no assurance of a continued rise, but that on the contrary a decline might set in at the current levels. It was believed a large quantity of 26-70 would be thrown onto the market in the next week. What the effect would be was problematic.

Neutral Prices Advanced

The neutrals, which have provided one of the bright spots in the market recently, attracted additional interest on Monday of this week, when prices were advanced throughout the list. All three-color neutrals were advanced three-quarters of a cent, four-color one-half cent, and five-color one-quarter cent. The demand for this class of lubricants, which developed with unexpected suddenness early this month, showed no signs of subsiding and it is believed that hereafter they are to have a larger place among the petroleum products.

Kerosene, which recorded a rise of a quarter-cent over last week's quotations, was exceptionally strong, with both spot and contract business active. With the higher quotations for kerosene, furnace oil took on additional strength also, attributable to the fact that it is utilized as a tractor fuel in place of kerosene.

The 32-36 gas oil cracking stock was in more active demand and quotations were higher, but the zero-to-15 material was a bit soft. Fuel oils were steady, with prices firm.

Bright stocks and cylinder stocks maintained the strength they have displayed recently.

Wax, which had been in diminishing demand, exhibited a better tone, though quotations were unchanged. Numerous inquiries were reported in both the domestic and export market. Much of this product is used now in the manufacture of containers for hundreds of foods and dairy products and summer is the season of heaviest demand for this purpose.

Refined Oil Market Barometer

Seasonal influences were apparent in various sections of the market. Motor fuel was up in most areas, partly the result of the approaching motoring months and partly of refinery shutdowns in East Texas. Natural gasoline strong in the Mid-Continent territory on the scarcity of offerings. Kerosene in demand, with prices rising. Neutrals continued to accumulate strength. Inquiries indicated an improved market for wax.

Mid-Continent—Both refinery and natural gasoline up. Kerosene strong. Neutrals in brisk demand. Active market for gas oil cracking stock.

East Coast—Improved tone in gasoline. Kerosene easier. Export market in all products dull.

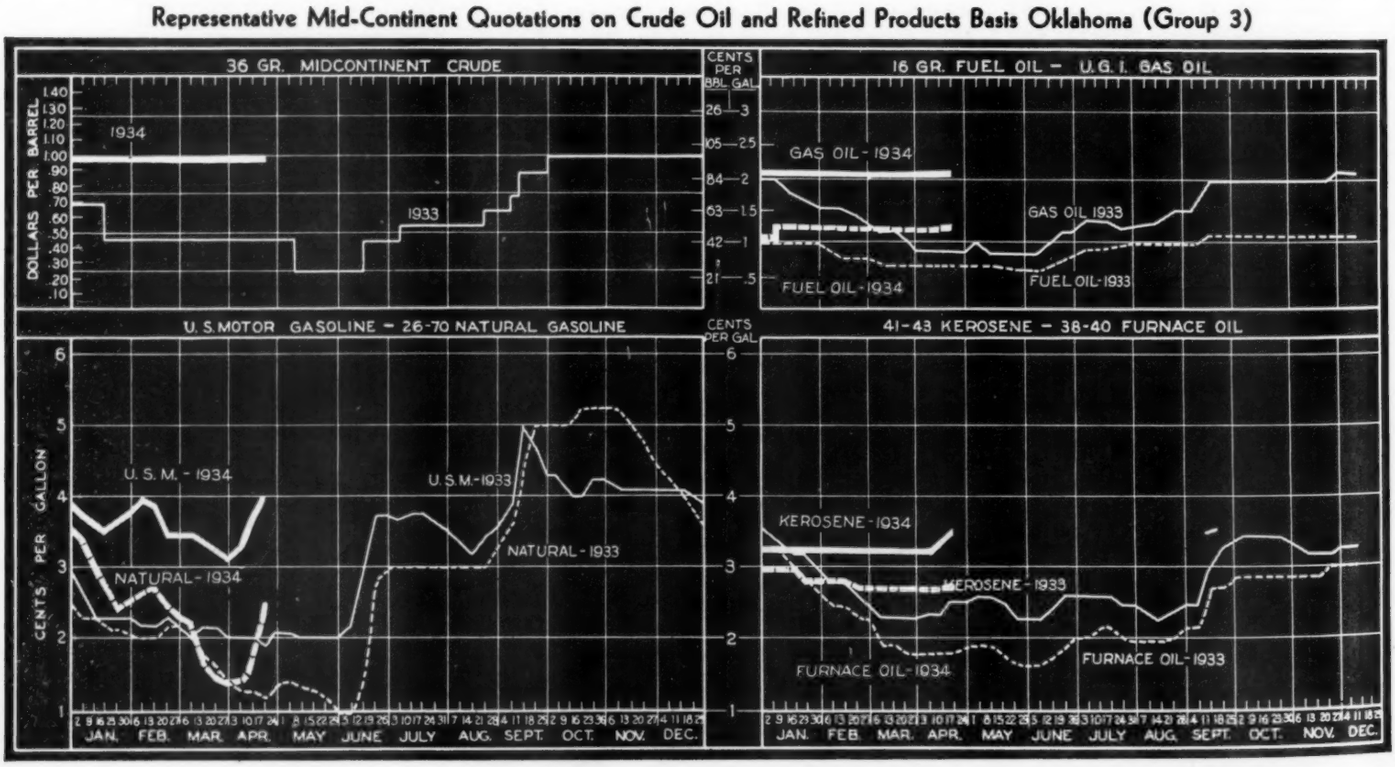
Gulf Coast—Gasoline steady, with plenty on coast, but scarce in East Texas. Kerosene sold out. Gas oil scarce. Pale oils behind with shipments.

Pennsylvania—Gasoline easy. Naphthas soft. Kerosene prices off.

California—Gasoline prices, stationary for a month, beginning to rise. No change in other products.

Chicago—Gasoline firm after brisk advance. Kerosene scarce and in demand. Tractor fuels readily bought. Heavy fuels strong.

Representative Mid-Continent Quotations on Crude Oil and Refined Products Basis Oklahoma (Group 3)


36 GR. MIDCONTINENT CRUDE
DOLLARS PER BARREL
1934
1933
CENTS PER BBL GAL
16 GR. FUEL OIL – U.G.I. GAS OIL
GAS OIL - 1934
GAS OIL 1933
FUEL OIL - 1934
FUEL OIL - 1933
U.S. MOTOR GASOLINE – 26-70 NATURAL GASOLINE
CENTS PER GALLON
U.S.M. - 1934
U.S.M. - 1933
NATURAL - 1934
NATURAL - 1933
CENTS PER GAL
41-43 KEROSENE – 38-40 FURNACE OIL
KEROSENE - 1934
KEROSENE - 1933
FURNACE OIL - 1934
FURNACE OIL - 1933
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

Stronger Tone to Eastern Gasoline Market, But Tank Car Prices for Kerosene Are Lower

By C. O. WILLSON
New York Bureau, The Oil and Gas Journal

NEW YORK, Apr. 16.—A somewhat better tone was apparent in the gasoline tank car markets of this area today and the latter part of last week. This situation developed in the refinery market despite a continuance of an unsettled market in the tank wagon and retail divisions which has brought scattered price cutting with the threat of general reductions.

This better feeling in the gasoline end was due to an improved seasonal demand and higher prices in competitive areas coupled with the expectation that some plan of bringing about a more healthy condition in the current supply and demand of the product, would be worked out at Washington. The expectation that this section would be given representation on the Planning and Coordination Committee through several of the major companies was interpreted favorably as making possible the application of any plan which aims to end the excessive production of gasoline in this and other refining territories.

In Philadelphia two of the major refiners advanced the price of their branded grades of regular gasoline from 6¼ to 6¾ cents and established a price of 6½ cents to jobbers for a product which has a minimum octane rating of 65. It was believed that this advance would spread to other coastal points provided it is generally supported by large and small sellers at Philadelphia. Among those who are optimistic regarding the general oil situation it is predicted that tank car prices will advance a minimum of 1 cent per gallon within the next six weeks with tank wagon and service station prices re-established in line with these base tank car quotations. This prediction is of course based on the assumption that the crude oil situation will improve in the Mid-Continent states and voluntary or governmental control of refinery operations will be made effective.

RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS FIRST QUARTER—1934 AND 1933 (DATA IN BARRELS)

At Atlantic Coast Ports—	1933 January	1933 February	1933 March	1934 January	1934 February	1934 March
Baltimore	30,000	255,000	157,000	87,000	90,000	256,000
Boston	46,000	46,000	.....	429,000	204,000	570,000
New York	648,000	399,000	512,000	884,000	1,228,000	608,000
Philadelphia	116,000	307,000	309,000	165,000	187,000	.....
Others	560,000	322,000	432,000	926,000	649,000	580,000
Total	1,400,000	1,329,000	1,410,000	2,491,000	2,358,000	2,014,000
Daily	45,000	47,000	45,000	80,356	84,214	61,786
Gulf Coast Ports—						
Port Arthur	.....	74,000	232,000	.....	.....	.....
Distribution—Atlantic Coast Ports—						
Gasoline	632,000	492,000	854,000	530,000	591,000	220,000
Kerosene	336,000	220,000	234,000	468,000	137,000	204,000
Gas oil and fuel oil	424,000	542,000	322,000	1,323,000	1,524,000	1,590,000
Lubricants	8,000	.....	.....	.....	8,000	.....
Total	1,400,000	1,329,000	1,410,000	2,491,000	2,358,000	2,014,000

Those who are hopeful of improved prices were encouraged by reports from the Mid-Continent and Gulf Coast that the gasoline market was stronger. As explained in these columns over the past month, there has been a steady decline in the Gulf Coast quotations on gasoline for shipment to East Coast points and they have constituted the principal disturbing factor in this market. U. S. Motor gasoline coming within the middle octane specifications has been delivered to Atlantic Seaboard points at prices around 5 cents per gallon and this low priced material has been reflected in price cutting in tank car, tank wagon and service station prices. A large part of this low price material at the Gulf came from refineries in East Texas. Thus if the Gulf Coast market shows permanent improvement this market will also have a basis for higher quotations.

Among the other products kerosene brought the only important price change of the week. Effective Friday, the Standard Oil Co. of New York, Inc., reduced kerosene tank car prices one-half cent at New York, Providence and Boston. The new prices are 5½ cents at these points. The New York Standard at the same time reduced the kerosene tank wagon price in Greater New York one-half cent to 8 cents. All the major sellers met these reductions. The major companies which had been quoting the 6-cent tank car price were from one-fourth to one-half cent above the spot market of other sellers. The latter have reduced their prices to 5¼ cents so that the going market on kerosene is now 5¼ to 5½ cents. This particular area does not have the active spring market found in the Middle West and Mid-Continent brought about by the use of kerosene as tractor fuel and other agricultural uses. It is widely used in this section for light and fuel but this demand declines during the spring and summer months.

It is expected that the lower tank car prices on kerosene will bring some reductions in distillate quotations. However, these fuel distillates are being freely offered at this time in expectation of a heavy demand starting in the late summer previous to the oil-burning season.

Refiners are anxiously awaiting some ruling from Washington which will make it possible for them to close contracts with jobbers and consumers covering furnace oil requirements for next season. The same situation applies to the heavier oils. They are not permitted to make flat price or top price contracts under the code. It is expected that this situation will be ironed out in the near future. All indications point to generally higher prices in all contracts from the residual oils to kerosene. Sellers are desirous of more flexible contracts than they have in the past which will protect them in the case of a shortage of the heavier oils next fall and winter.

California Shipments

The accompanying table was prepared to show the receipts of California oil at Atlantic and Gulf Coast points the first quarter of this year compared with the same period in 1933. The data support the statement of those who have pointed to the large increase in California shipments but a detailed study will show that this increase is largely confined to fuel oil. The latter increase is largely due to a contract made last fall between the Standard of New Jersey and the Standard of California. This contract called for the delivery of several million barrels of fuel oil by the latter company over a period of a year.

The table shows that total California shipments to Atlantic Coast ports increased from 2,924,000 bbls. the first quarter of 1933 to 4,139,000 bbls. the same period this year, a gain of 65 per cent. The daily average is 76,250 bbls. this year compared to 45,900 bbls. last year. The average for all of 1933 was 52,000 bbls. which compares with 31,000 bbls. in 1932. Thus the present deliveries of California oil to Atlantic Seaboard points is now approximately 50,000 bbls. a day more than two years ago.

While complete data are not available this increase in California shipments has been offset in part at least by decreased shipments from the Gulf Coast. Cali-

(Continued on Page 56)

American Petroleum Institute Weekly Refinery Statistics

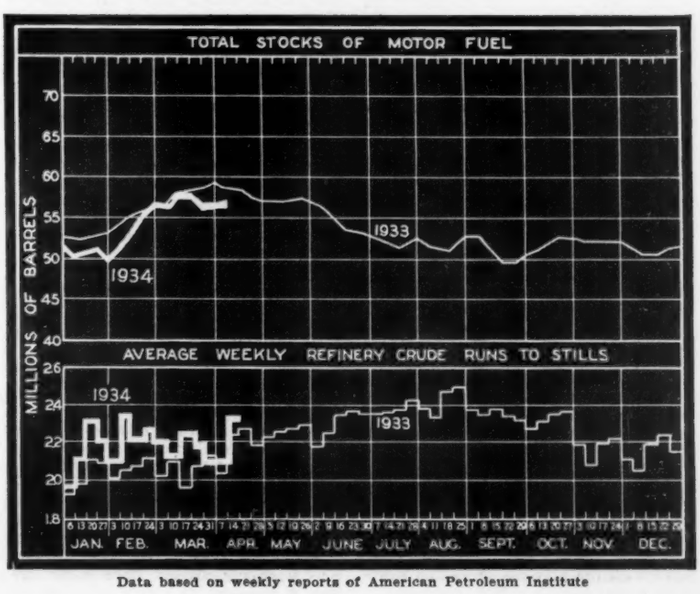
Figures below reported for week by American Petroleum Institute. (1) Per cent refinery capacity represented. (2) Daily average crude runs to stills, (3) Total motor fuel stocks. (4) Gas oil and fuel oil stocks. All figures in 42-gallon barrels.

Week Ending April 14, 1934, Compared to Week Ago

	Week Ending April 14, 1934 (1)	(2)	(3)	(4)	Week Ending April 7, 1934 (1)	(2)	(3)	(4)
East Coast	100.0	493,000	.....	5,702,000	100.0	430,000	17,584,000	5,361,000
Appalachian	93.3	96,000	.....	858,000	92.7	92,000	1,819,000	751,000
Ind., Ill., Ky.	94.6	323,000	.....	2,618,000	94.6	291,000	9,645,000	2,862,000
Okla., Kans., Mo.	83.7	234,000	.....	2,772,000	83.7	201,000	5,761,000	2,768,000
Inland Texas	47.6	99,000	.....	1,661,000	47.6	68,000	1,302,000	1,625,000
Texas Gulf	97.4	456,000	.....	4,319,000	97.4	415,000	5,140,000	4,298,000
La. Gulf	96.4	112,000	.....	892,000	96.4	116,000	1,520,000	1,168,000
N. La. and Ark.	83.7	47,000	.....	531,000	83.7	42,000	317,000	490,000
Rocky Mtn.	66.7	46,000	.....	699,000	66.7	36,000	1,488,000	665,000
California	96.9	434,000	.....	82,801,000	96.9	405,000	13,007,000	83,350,000
Total U. S.	89.7	2,340,000	.....	102,853,000	89.6	2,096,000	57,583,000	103,338,000

Week Ending April 14, 1934, Compared to Year Ago

	Week Ending April 14, 1934 (1)	(2)	(3)	(4)	Week ending April 15, 1933 (1)	(2)	(3)	(4)
Appalachian	100.0	493,000	.....	5,702,000	99.1	433,000	16,340,000	6,105,000
Appalachian	93.3	96,000	.....	858,000	95.0	76,000	2,018,000	823,000
Ind., Ill., Ky.	94.6	323,000	.....	2,618,000	97.5	305,000	8,760,000	3,472,000
Okla., Kans., Mo.	83.7	234,000	.....	2,772,000	84.9	225,000	5,428,000	2,949,000
Inland Texas	47.6	99,000	.....	1,661,000	56.4	83,000	1,666,000	2,104,000
Texas Gulf	97.4	456,000	.....	4,319,000	97.7	439,000	5,950,000	6,161,000
La. Gulf	96.4	112,000	.....	892,000	97.3	106,000	1,881,000	1,830,000
N. La. and Ark.	83.7	47,000	.....	531,000	88.5	43,000	318,000	639,000
Rocky Mtn.	66.7	46,000	.....	699,000	90.8	28,000	1,473,000	647,000
California	96.9	434,000	.....	82,801,000	94.6	463,000	14,522,000	98,642,000
Total U. S.	89.7	2,340,000	.....	102,853,000	91.6	2,201,000	58,356,000	123,372,000



Data based on weekly reports of American Petroleum Institute

NEWS FOR SALES DEPARTMENTS

Independent Jobbers Meet and Organize Association

HARRISBURG, Pa., Apr. 16.—At a meeting in the Penn-Harris Hotel here, about 60 independent oil jobbers formed the Pennsylvania Independent Oil Jobbers Association. Seven directors were elected as follows: Clarence Schock, Schock Independent Oil Co., Mount Joy, Pa.; W. C. Hidlay, Hidlay Oil Co., Inc., Bloomsburg, Pa.; W. F. Carvell, Diamond State Petroleum Co., Wilmington, Del.; C. S. Price, United Oil & Gas Co., Mount Union, Pa.; John R. Young, John R. Young & Co., Hendricks, Pa.; William Sword, Petroleum Service Co., Wilkes-Barre, Pa.; and Ed Gallagher, Joseph W. Patterson, Philadelphia, Pa.

The meeting was presided over by Mr. Schock, who is temporary chairman of the board, and a talk was given by Paul E. Hadlick, secretary-counsel for the National Oil Marketers Association, Washington, D. C.

The association plans to hold bimonthly meetings in different sections of the State so that all jobbers will find it convenient to attend.

CAR PRODUCTION UP 84 PER CENT

All previous monthly records of production of cars by members of the National Automobile Chamber of Commerce back to September, 1929, were eclipsed last month, according to a report released today estimating the Chamber output at 262,156 cars and trucks.

The number of workers employed by its members also attained its highest level since September, 1929.

On the basis of this estimate, production by Chamber members was 208 per cent above the corresponding month last year and 49 per cent above February of this year.

Production for the first quarter was placed at 539,128 units, an increase of 84 per cent over last year.

Notwithstanding the substantial advances in factory operations, nearly every automobile company is reporting heavy banks of unfilled orders.

The chamber report, which includes the figures for all but one major producer in the industry, is summarized as follows:

March, 1934	262,156
February, 1934	175,386
March, 1933	84,983
Three months, 1934	539,128
Three months, 1933	292,176

IMPORTS OF PETROLEUM

Relatively little was imported into the United States during February in the long list of petroleum products. Only 2,415,887 bbls. of crude were received also. The following table supplies a detailed summary of the February imports:

	Bbls.
Petroleum, crude	2,415,887
Fuel oil, inc. topped petroleum	127,796
Liquid derivatives of pet., n.e.s.	1
Gasoline and other motor fuel	209
Illuminating oil, kerosene	318
Lub oils, including paraffin oil	46
	Lbs.
Paraffin and paraffin wax	4,951,498

NEW ORLEANS PRICE WAR

NEW ORLEANS, Apr. 14.—Recommendations toward establishing a uniform retail price on gasoline here were forwarded today to the Planning and Coordination Committee in Washington following a two-day conference between distributing company officials and code administrators.

Net retail gasoline during the past week sank to 7½ cents per gallon, compared with the previous prevailing price of 11 cents.

PREDICTS HIGHER PRICES

NEW YORK, Apr. 14.—Gasoline prices to consumers will be 2 to 3 cents per gallon higher by the end of this year than they are at this time, according to W. C. Burns, executive vice president of the Richfield Oil Corp. of New York, who made the principal address at the two-day annual sales meeting of the corporation held this week at Syracuse, N. Y. His prediction was based on a continued recovery in the oil business to the point where prices to consumers reach profitable levels to the industry. Mr. Burns reported at the meeting that Richfield sales in this territory had increased 10 per cent over last year despite severe weather conditions during the winter months.

The two-day meeting was devoted to discussions centering around sales plans for the coming year. Among the speakers were Professors Richard Borden and Alvin Busse of New York University. Other officials attending the meeting included George P. MacDonald, general sales manager; M. F. Braechel, treasurer; W. J. Rule, Jr., sales manager in charge of district sales, and B. M. Pollack, advertising manager.

WILL NEED NEW TANKERS

PHILADELPHIA, Pa., Apr. 14.—In a year or two, private oil companies should need a great many tank ships to replace their present fleet, R. L. Burke, vice president, Sun Shipbuilding & Drydock Co., subsidiary of Sun Oil Co., said in commenting upon report the Government was considering subsidizing oil companies to aid them to build tankers which would be valuable in time of war.

Practically all tank ships now operating were built between 1914 and 1920, so that the bulk of them will need to be replaced in the next few years, Mr. Burke said.

REDUCES MARKETING EXPENSE

The Standard Oil Co. of Ohio today has the lowest marketing expense per gallon of gasoline of any year since 1922, beyond which comparable figures are not available, states W. T. Holliday, president, in the annual report. He points out that for the past two years net losses of the company have aggregated about $2,000,000, compared with profit in 1931 of $2,359,173 and in 1930 of $3,724,325, so that for the depression period as a whole the company has a net profit.

"Meanwhile, throughout the period, substantial progress of permanent importance has been made in obtaining curtailment of marketing and other expenses, through increasing of operating efficiencies, improved organization methods, elimination of unprofitable outlets, and the like."

BUY 26,000,000 GALLONS

An analysis made by United Air Lines, revealed that last year planes operating on regular schedule in the United States consumed more than 26,000,000 gallons of gasoline and nearly 1,000,000 gallons of oil.

United Air Lines purchases annually, for its own requirements, approximately 8,000,000 gallons of gasoline and 250,000 gallons of oil. It is now flying 1,000,000 miles a month, carrying passengers and express. On one of its 19½-hour coast-to-coast flights, United's 3-mile-a-minute Boeings, powered with two 550-horsepower motors, burn 1,000 gallons of gasoline.

GUILTY OF SUBSTITUTION

BROOKLYN, N. Y., Apr. 14.—John Walsh, tank truck driver for the Oil Well & All's Well Corp., and George Singleton, garage employe, were found guilty in Special Sessions Court, Brooklyn, of violating a state law prohibiting the substitution of motor fuels. A jail sentence is mandatory in the case of John Walsh, who was convicted on a similar charge in January.

Motorist Will Be Shown When to Change Motor Oil

HOUSTON, Tex., Apr. 14.—"The forthcoming 'Test-o-Drop' motor oil campaign sponsored by the Gulf Refining Co. introduces an innovation in motor oil testing which should prove invaluable to motorists who are often in a quandary as to the time when they should change their oil," declared O. H. Carlisle, district sales manager of the Gulf Refining Co.

"Most experienced motorists who keep their cars in perfect operating condition realize the importance of keeping their oil level high, changing the oil and flushing out accumulated dirt and sludge with a washing oil. But the question often arises, even with experienced motorists, 'How often should I change my oil?' While the mileage which the car has run is a fairly good guide as to when the oil has reached a point of contamination requiring a change, it is really not the mileage but the condition of the oil which determines when the change is needed. In some cases oil will need changing after only a few hundred miles. In other cases it may be good after 1,000 or even 1,500 miles or more. Even the best oil that money can buy can become contaminated even at an early mileage for a variety of reasons that have nothing to do with the oil itself. Among the most common reasons for oil contamination is neglecting to flush the motor before new oil is put in, filter not working properly, leaky piston rings, fouled spark plugs, faulty ignition, and dust breathed in by the air intake."

In an effort to find a practical way for every motorist to judge the condition of his oil, himself, and which would be as accurate as the "electric eye," a machine which directs a beam of light through the oil to show the amount of contamination it contains, the Gulf Refining Co. has devised the "Test-o-Drop." Simple and inexpensive, yet available for practical use, it represents a great improvement over previous methods.

This new test is extremely simple and easy to make. The "Test-o-Drop" consists simply of a piece of cardboard about 4 by 7 inches in size, into which a hole has been cut. Across the hole there is attached a tightly stretched screen of absorbent cloth. By putting a drop of oil from the bayonet gauge on this cloth screen and holding it up to the light the amount of contamination from dirt and sludge can easily be judged. To give an accurate comparison with clean oil a drop of new oil may also be put on the screen beside the oil taken from the motor.

FOREIGN OIL BURNER SALES

A decided improvement in sales of American-made automatic oil burners is looked for in Argentina during the first half of the current year, according to Assistant Trade Commissioner J. B. Smith in a report to the Commerce Department.

Motors Being Replaced by Diesel Engines in Germany

The Diesel engine is steadily replacing gasoline and electric motors in all types of motor-propelled conveyances in Germany, according to Assistant Trade Commissioner Rolland Welch of Berlin.

The use of Diesel motors in watercraft is already well known and there are few vessels now constructed in Germany with any other type of motor.

Experiments with self-propelled railway cars equipped with Diesel motors have resulted in a great increase in the use of these vehicles within the last two or three years. Germany's federal railway system has equipped numerous cars with Diesel motors and is said to have successfully operated these cars for the last three years at a considerable saving.

The only airplane Diesel motor now successfully produced in Germany is that made by Junkers and installed in a number of Junkers' planes.

The most recent application of the Diesel motor is in connection with automobile trucks, tractors and power shovels. The rate of production of such apparatus equipped with Diesel motors was so great in 1933 that it is estimated that between 70 and 80 per cent of all such now produced in Germany are equipped with Diesel engines.

The cost of gasoline in Germany is approximately 2½ times that of Diesel fuels. Apart from the savings thus permitted, there is a wide interest in Germany in the Diesel motor because the country is capable of producing substantial quantities of Diesel fuels. Some gasoline is produced in Germany from local products, but the quantity is small and the production costs unusually high.

It is estimated that at the present time there are approximately 10,000 Diesel powered vehicles in use in Germany. Approximately 4,500 of these are trucks.

BIGGER ADVERTISING CAMPAIGN

ST. LOUIS, Mo., Apr. 16.—Believing that business is definitely on the upgrade, Shell Petroleum Corp. is launching the largest advertising program in its history today to introduce a new "Super-Charged" Super Shell gasoline, it was announced by Paul Ryan, manager of the sales promotion-advertising department.

More than 330 newspapers throughout 26 middle western states will participate in the campaign.

"Millions of dollars were expended by Shell in last year's advertising program, which produced a tremendous increase in the volume of gasoline sold by our company," Ryan asserted.

An outstanding innovation of the campaign is the featuring of famous comic-strip characters in brightly colored figures in service station decorations. Two million play masks of these characters will be given away to children at Shell service stations during the opening days of the campaign.

Outdoor posters, direct mail and radio interviews with leading business men and champions in many lines of sports, which will be broadcast from 21 stations throughout Shell's territory, will round out the advertising program.

ADD TO WHITE STAR

MUSKEGON, Mich., Apr. 16.—The White Star Refining Co., which Saturday took over the Cardinal-Dixie properties in Muskegon, are considering the use of water transportation on the Muskegon Harbor in locating a new western Michigan branch and distributing center in Muskegon.

NATURAL GASOLINE MANUFACTURE

Investigation Reveals Wide Breach in Ideas

The state senatorial investigation of gas waste in the Panhandle Field of Texas is revealing a lack of appreciation of the problems of the opponents. This applies equally well to both sides. Testimony given in the past week at Amarillo reveals that many landowners and royalty owners are now getting more money from their land as the result of stripped plants operating than ever before, but it is also revealed that the money so received comes from a practice that is grossly wasteful. Until the landowners are paid as large an amount for their gas as is now being paid by strippers, local sentiment favors a continuation and future expansion of stripping operations. Also if this factor may be overcome the Texas Railroad Commission would probably join with the opposition in favoring a revision of the present so-called "sour gas law."

It seems unreasonable that when considering the relatively small amount involved in the controversy that a program of control cannot be evolved which will net a fair return to the stripping plants by reason of increased natural gasoline prices, an equivalent return to the landowner and royalty owner because of higher prices and at the same time establish a guarantee to the gas pipe lines of an adequate and relatively low cost supply for a longer period into the future.

Paul Macina, who presented a petition signed by 183 landowners, introduced a statement showing that the Lone Star Gas Co. paid one landowner only $79.68 for her royalty from December, 1931, to February, 1934.

"It was not sufficient to take care of the increase in taxes on her 320-acre farm, brought about by the discovery of gas," Mr. Macina said. "Her farm during 18 months of this time was served by another gas line, which charged her $100.20 for the gas she used domestically. She got 2 cents at the well and paid 67.5 cents in her home.

H. M. Stalcup, vice president and production manager for the Skelly Oil Co., offered his plan of control for consideration at the Thursday hearing and in the main provides:

1. Repeal of the stripping law, confining extraction to sour gas and casinghead gas only, and limiting sour gas production to the same percentage governing the production of sweet gas, the residue from the stripping plants to be utilized by carbon black plants.

2. Adoption and rigid enforcement of a "reasonable, sensible gas-oil ratio," shutting in wells where oil production is no longer of importance.

3. Voluntary or enforced ratable purchasing on an equitable basis, which would include the average factor.

4. Unitization (production from a large acreage through one well) in areas where such a plan is necessary to avoid the drilling of too many wells.

CARTER BUILDS PLANT

The Carter Oil Co. will build a two-unit compression natural gasoline plant in the South Osage Field of Oklahoma, but its operation will be principally to return gas to the crude oil bearing sands. The output of the plant will be small. Construction work is expected to be completed early in June. This marks the third plant to be started in the Osage area, due to discovery of the Little Chief and South Osage Pools.

Subjects of Practical Nature Feature the American Chemical Society Program

Subjects of immediate interest to natural gasoline plant operators, refiners and oil company engineers in general will be discussed at the joint meeting of the petroleum division of the American Chemical Society and the Midwest regional group of the A.C.S. at the Muehlebach Hotel in Kansas City, Mo., on May 3, 4 and 5. The antiknock value of the lighter group of hydrocarbons will be discussed by F. B. Neptune and H. M. Trimble of the Phillips Petroleum Co. and the paper should prove exceptionally interesting because of its timeliness. An excess production of natural gasoline for the moment has exerted a depressing effect upon the general motor fuel market. Larger refiners, to whom the natural gasoline industry is looking for relief are obligated to maintain a very close control on the antiknock value of the finished motor fuel blend and since most of them are licensees of the Ethyl Gasoline Corp. and are obligated to hold the octane value of their house brand gasoline (Q brand Ethyl) at a maximum of 70. Competition is forcing these companies to maintain it at or near 70, so the use of more or less natural is a vital factor in controlling octane value. The paper "Entrainment in Oil Absorber," by F. A. Ashraf, T. L. Cubbage and R. L. Huntington, should provide much interest because of the practical nature of the subject.

In addition to the papers on petroleum, there will be 28 papers presented in the inorganic and physical group, 17 in the organic and biochemical, 10 in chemical education and 7 in paint chemistry.

Dr. Robert A. Millikan of the California Institute of Technology, will speak on "Some Newer Problems of Nuclear Physics" at the open meeting in the Thomas A. Edison Hall on Friday night.

Student inspection trips on Friday and Saturday are expected to draw hundreds of students of chemistry from nearby schools.

A.C.S. PETROLEUM SECTION PROGRAM

The Determination of the Viscosities of Blended Lubricating Oils From the Mean Molecular Weight of the Components of the Blend, by John I. Moore and H. L. Dunlap.

The Vapor-Liquid Equilibrium of Hydrocarbon Mixtures, by Harold A. Beatty and George Calingaert.

Chemically Controlled Acidation of Oil Wells, by Sherman W. Putnam.

Surface Tension Changes on the Additin of E.P. Bases to Lubricating Oils, by C. J. Boner.

The Antiknock Values of Certain Light Hydrocarbons, by F. B. Neptune and H. M. Trimble.

A Continuous Laboratory Topping Apparatus, by Harry T. Rall and Harold M. Smith.

Entrainment in Oil Absorbers, by F. A. Ashraf, T. L. Cubbage and R. L. Huntington.

Apparatus and Methods for Natural and Refinery Gas Analysis, by Walter J. Podbielniak.

Producing and Refining of Petroleum, by C. W. Rippie.

The Color Stabilization of Gasoline, by L. V. Sorg.

The Vapor Phase Clay Treatment of Cracked Gasoline, by H. M. Steininger.

A Pure Hydrocarbon Standard for Evaluating Inhibitors, by C. G. Dryer, C. D. Lowry, Jr., J. C. Morrell and Gustav Egloff.

Manufacture of Penetration Asphalt From Petroleum by Vacuum Distillation, by Dr. Sidney Born.

Gasoline From Catalytic Treatment of Cracked Gases, by W. N. Ipatieff.

Heat Transfer Coefficient of Hydrocarbon Condensing Films, by Charles L. Nickells.

A paper on the Use of Aquagel as a Drilling Mud, by Baroid Sales Co.

Several Plants to Be Built in Osage Field

Phillips Petroleum Co. will build a 15,000-gallon natural gasoline plant in the Osage Field of Oklahoma, construction having started this week and production is planned to begin about the middle of June. The exact location of the plant is given as 16-24-70 on the Federal Naval Reserve. Gas in sufficient volume has been secured under contract. Most of the residue gas will be turned back to producers for repressuring. Twelve compressor units will be set immediately.

Two weeks ago the Skelly Oil Co. announced plans for the erection of a 10,000-gallon plant in 10-25-6e in the South Osage Field.

PLANT NEARS COMPLETION

Work on a new natural gasoline plant in Greendale Township, Midland County, in the heart of the central Michigan oil fields, is being rushed to completion under the direction of R. H. Chisholm, manager.

The new plant with a capacity of 3,000,000 to 5,000,000 feet of gas a day is being erected by O. H. Grimes of Tulsa who has a contract with the Pure Oil Co. for a large part of his gas supply. It was to be completed about April 1 but work has been delayed by cold weather in the northern oil state. It is expected to be ready for operation by April 15.

Dry gas will be returned to the well owners as no other commercial market as yet has been developed for the output of the new plant. It may be used to repressure producing oil wells.

The Bell Gasoline Co.'s 2,000,000-foot plant has been shut down since February because of cold weather and lack of pumping equipment, the plant having operated on well pressure since it was moved from Muskegon to the Mount Pleasant Field.

Accidents to Tank Cars Increased in Depression

In its annual report of tank car accidents, the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles shows a slight increase in number of accidents and in property loss for 1933 compared to the previous year. Accidents occurring from the transportation of natural gasoline are not segregated in the report and in the following table the transportation of liquids other than oil is included but the table is unusually interesting because of the large percentage of total shipments oil is known to represent.

In his report, Chief Inspector Col. B. W. Dunn, states in part:

During 1933 this department has continued to be personally represented on all the committees with which it has been associated in the past. These special activities, as well as the routine work of the department, have to a great extent been devoted to the defense and maintenance of well-established practices which have been accepted by a great majority of those concerned as reasonable and necessary for the promotion of public safety.

Our records of accidents involving tank cars continue to show the need for eliminating, at the earliest date practicably possible, certain features of the tank car which are of obsolete design, namely, the arch bar truck and the spring type bottom discharge outlet valve, failures of which were responsible for a large percentage of the losses recorded, as shown in the table:

Year—	No. of accidents	Property loss
1933	139	$176,353
1932	132	116,563
1931	116	30,478
1930	167	32,217
1929	188	127,613
1928	207	69,647
1927	148	217,005
1926	137	348,185
1925	148	137,314
1924	140	95,060
1923	152	115,392
1922	115	200,110
1921	110	201,346
1920	86	236,174
1919	64	172,458
1918	48	245,000
Total	2,097	$2,520,915

NATURAL EXPORTS GREATER

Exports of natural gasoline more than doubled in February compared with those for the previous month, according to the Department of Commerce. The United Kingdom imported 53,374 bbls. from the United States during February, while Canada accounted for the balance of the total. The total value of natural gasoline exported in February is shown as $162,087. The customs districts through which these shipments were cleared shows Galveston to have handled the largest volume, while Michigan ranked second in importance.

	Purchases of U. S. natural gasoline Feb.	Jan.
United Kingdom	53,374	.....
France	.....	2,682
Canada	23,915	27,645
Total volume	77,289	30,327
Value	$162,087	$62,805

	Custom districts through which cleared Feb.	Jan.
St. Lawrence	2,214	492
Buffalo	4,934	9,351
Sabine	.....	2,682
San Francisco	.....	47,619
Galveston	53,374	.....
Montana and Idaho	980	.....
Dakota	2,718	2,939
Michigan	13,069	14,863
Total	77,289	30,327

Late Fields

OKLAHOMA

Crosbie & Moran's wild well, C SW SW NE Section 30-2-7, Fitts area, Pontotoc County, was put under control by mudding in the 69,000,000-foot gas production. Preparations were being made to run 7-inch pipe to 1,870 feet, total depth. The revised sand record of this well show gas sands at 1,200-10 feet, 1,675-87 feet, 1,704-07 feet and 1,806-70 feet.

Magnolia Petroleum Co.'s No. 1 C SW SE Section 20-20-2w, Lucien Pool, Noble County, had first Wilcox sand at 5,019-74 feet and second Wilcox at 5,128-5,222 feet. The well made 832 bbls. in 24 hours from the first sand and no increase from the second.

Skelly Oil Co.'s No. 1, C NW NW Section 28-20-2w, found first Wilcox sand at 5,027-81 feet and second at 5,143-63 feet. It made 625 bbls. in 12 hours with gas at the rate of 2,000,000 feet per day.

Sinclair Prairie Oil Co.'s No. 1, C NW NE Section 29-20-2w, flowed 1,321 bbls. in 12 hours with gas at the rate of 3,000,000 feet. First Wilcox lay at 4,995-5,043 feet and second at 5,100-5,202 feet.

In the South Burbank Field, Skelly Oil Co.'s No. 2, C SE SE SW Section 3-25-6, flowed 3,072 bbls. in 21 hours from Burbank sand at 2,682-2,762 feet.

Carter Oil Co. and others' No. 1, C NW NW SE Section 3-25-6, produced 1,787 bbls. in 24 hours from Burbank sand at 2,704-85 feet.

Mead Brothers and others' No. 4, C NE NW SW Section 27-25-6, had sand at 2,717 feet and was drilling ahead at 2,782 feet. The well made 530 bbls. in 12½ hours.

The Denver Producing & Refining Co.'s deep well, in NW SW SW Section 34-10-10w, Caddo County, was given a small shot in an attempt to loosen up the sand. Pipe is set at 9,910 feet and the total depth is 9,982 feet. The shot was not very effective. The well made one flow of 150 bbls. some time between Monday evening and Tuesday morning. It was thought the well's failure to flow steadily was caused by the sand having been cemented with heavy drilling mud and that shooting would benefit. The crew was getting ready to run a Cavins bailer in a further effort to clean out the hole.

KANSAS

Boyle and others' No. 1, C SE SE Section 7-19-16w, Rush County, Kansas, had Silicious lime at 3,841-71 feet, was re-acidized and pumped 38 bbls. of oil in three and one-half hours.

Vickers Petroleum Co. and Phillips Petroleum Co.'s No. 1, C SW SW NE Section 15-25-11w, Stafford County, which found a pay at 3,921-24 feet, ran 3-inch tubing to 20 feet off bottom and pumped 280 bbls. of oil and 32 bbls. of water in 22 hours.

The Amerada Petroleum Corp. and Stanolind Oil & Gas Co.'s No. 1 Hilger, Reno County wildcat, C SE SE SW Section 16-26-4w, was given a potential test on Monday and flowed 968 bbls. of oil and 175 bbls. of water in 24 hours. It is a Hunton lime well at 4,062-67 feet.

MICHIGAN

MUSKEGON, Mich., Apr. 17.—More than 4,000 bbls. of new initial and indications of commercial production in a mile south extension is reported in the Porter Township Pool, Midland County. Fred J. Turner and others' No. 1-A George Root, SE SW Section 21-13n-1w, came in for 2,500 bbls. a day in the Dundee. Strange and Fortney's No. 4 J. W. Campbell, SW NE SE Section 18, same township, is reported to have increased from 300 to 2,200 bbls. a day in the Dundee.

A mile south extension of the Porter Pool was indicated when Great Eastern Oil Co.'s No. 1 Brennan, formerly Bradner-Vaughan Development Co.'s well, Section 27, struck Dundee at 3,442-52 feet and filled up 2,000 feet with oil. It will be treated with acid.

Informal Talks on World Oil Situation Under Way in London This Week

NEW YORK, Apr. 17. — A series of informal talks dealing with oil marketing conditions in Europe and other foreign countries will start Wednesday in London, according to information received here. Walter C. Teagle, president, and W. S. Farish, chairman of the board of the Standard Oil Co. (New Jersey), with other Standard officials are now in London to attend the meetings which are expected to extend through several days. The meetings will be attended by representatives of the Standard, Dutch-Shell, Anglo-Persian and other British oil interests.

While world oil conditions will be discussed, it is understood that the immediate concern of those attending the conference will be the disposition of the additional crude oil which will be available within a few months with the completion of the pipe line of the Iraq Petroleum Co. This crude is expected to be available on European markets by early fall.

As organized in 1929 the ownership of the Iraq Petroleum Co., formerly the Turkish Petroleum Co., was divided equally among four major companies each having 23.75 per cent of the total stock with a 5 per cent interest held by a fifth concern. The four major units controlling the line are Anglo-Persian Oil Co., Compagnie Francaise des Petroles, Near East Development Co. with the Participations Investments, Ltd., holding the 5 per cent interest.

The Anglo-Saxon Petroleum Co. is a subsidiary of the Royal Dutch-Shell. The D'Arcy Exploration Co. is owned by the Anglo-Persian Oil Co. and the British government is affiliated through its 50 per cent stock interest in the company. The Compagnie Francaise des Petroles is owned by French capital with a substantial interest held by the French government. The Near East Development Co. is owned by the Standard Oil Co. (New Jersey), Socony-Vacuum Corp. and the Gulf Oil Corp. Originally the Atlantic Refining Co., Consolidated Oil Corp. (Sinclair), the Texas Corp. and the Pan American Petroleum & Transport Co. (Standard Oil of Indiana) participated in the American group or as it is now called the Near East Development Co., but these companies later either withdrew or sold their interest to other American companies. The Participations Investments, Ltd., representing interests that were connected with the early promotion of the plan to develop Iraq production, hold the small amount of stock without voting privilege. Headquarters of the Iraq company are located at City Gate House, London, England, with the management under the control of a directorship in which all the four major companies are represented.

It is believed that the London conferences will eventually result in the working out of a world program in which all the principal producing countries will participate providing for the orderly disposition of crude petroleum and refinery products.

Petroleum Labor Policy Board Rejects Both Sides

(Continued from Page 10)

was pointed out that practically all the output from these operations could be replaced by simply increasing the production allowables in flush fields or speeding up the throughput in plants without materially increasing the number of employes now necessary in such operations. Perhaps the fact that nearly all of the employes in these marginal operations are widely scattered and scarcely amenable to inclusion in labor union organizations, has a bearing on organized labor's lack of interest in this great class of employes.

Labor Board's Interpretation

Doctor Leiserson, speaking as chairman of the Labor Policy Board, stated emphatically that both of these interpretations by employers or employes were not in keeping with the purposes of Section 4 and stated he would strongly recommend to Secretary Ickes both be denied. He said the board would make a recommendation in lieu of these but refrained from giving information as to its exact nature. It was apparent, however, that the board was definitely of the opinion that neither 1929 wages nor earnings had any bearing on the interpretation of Section 4, but that equitable adjustments were concerned with rates of pay effective immediately before the code was signed (presumably September 1, 1933). However, he at one time intimated that equitable adjustments should be based on hourly rates of pay, but later both he and Doctor Stocking intimated such adjustment should include an adjustment of total weekly earnings intimating that the hourly rate adjustment should be used as the base rate to which should be added some portion of the reduction in total weekly earnings due to the reduction in hours of labor. Although Doctor Lieserson stated emphatically that the interpretations of both employers and employes were based on a misconception of Section 4, yet his tentative and indefinite explanation of the board's probable recommendations seemed to be on some middle course or compromise between the two parties. Unless his ultimate recommendation is materially changed, it would seem that the board also is confusing or combining the provisions of Sections 4 and 7.

Lieserson's Statement

Chairman Lieserson's statement at conclusion of the hearing follows:

"I would like to say with respect to this entire hearing, however, there is one explanation I ought to make, and that the employers particularly ought to consider:

"I think the differentials as presented show that the Planning and Co-ordination Committee were working under a misapprehension all this time. Our board attempted to explain it to them a number of times, and apparently it did not register.

"The code does not say that minimum wages for all the occupations shall be settled. There is no such provision in the code. Nor does the code say that the occupations should be classified; there is no such provision. Both of these may be desirable things to do. But we have nothing to do with that. How an employe shall be classified is a matter of bargaining between employer and employe.

"Minimum wages above the minimum fixed in the code is a matter of bargaining between employer and employe."

Statement of Judge Beaty

Amos L. Beaty, chairman of the Planning and Co-ordination Committee of the petroleum industry, made the following statement following the hearings:

"Now that the argument is openly made that the minor operator, such as the small refiner or the stripper-well owner, has no place in the picture and should be eliminated in the interest of labor, we present to the industry our view of the matter.

"We do not agree to the proposition. It would be shocking in its consequences and contrary to the purposes of the code and the recovery act. The code fixes minimum rates for common labor and we have recommended minimum differentials for skilled labor in accordance with the code. All of these are minima and are below the rates being paid by at least some of the larger companies. We can see no probability that they will become actual schedules for these companies. But they do give the smaller and weaker operators a chance to live if, in their regions, labor is obtainable at rates they can afford to pay. We were dealing only with minimum rates and minimum differentials. Those recommended by us compare favorably with those fixed for other industries. Competition for labor may destroy the small enterprise, but we will not knowingly make a recommendation which would have that effect. Our schedule by regions was prepared in exact accordance with the code, which permits of no fanciful or ulterior construction."

Collette Cites Prices

J. D. Collette, who made the opening statement for the industry, called the board's attention to the fact that whereas in 1929 gasoline was selling at the refinery for 8 cents, today it sold for between 3 and 4 cents; that Region 4 produced about 50 per cent of the U. S. total production of natural gasoline and that casinghead today was selling as low as 1½ cents, whereas in 1929 it sold for 7 cents; crude today selling at $1 was contrasted with crude at $1.40 in 1929. He stated that the industry had no desire to reduce wages in proportion, but that this condition must be taken into consideration in fixing differentials; that differentials must be fixed which the industry could pay.

Dr. E. R. Lederer presented detailed statistics for 181 refineries in Region 4. Other representatives of the industry who appeared before the board and recommended the differentials were: Ray M. Collins, Oklahoma producers committee; Emby Kaye, Kansas and Oklahoma refineries; B. E. Hull, chairman, transportation subcommittee, Region 4; J. E. Dyer, secretary, labor subcommittee, Region 1; Charles L. Suhr, chairman, subcommittee, Region 1; R. H. Ivory, Region 6; Carl Weiner, Chanute, Kans.; J. H. Mahoney, La.-Ark. Refiners Association; H. H. Anderson, Region 3; Victor Downey, Region 3; P. H. Curry, South Penn Oil Co.; A. E. Faine and W. J. Brundred on the stripper well production area, and Ray E. Miller on natural gasoline for all regions.

CARTEL HEARING

LOS ANGELES, Calif., Apr. 14.—Arguing demurrers filed in Federal court by the Standard of California and Signal Oil companies, U. S. Attorney Hall charged Administrator Ickes acted without authority in approving the so-called oil cartel.

"Only the President has a right to approve any cartel under the code," Mr. Hall said. "If the court should take judicial notice of the cartel agreement, because it was approved by Ickes, then judicial notice should be taken of the fact that Attorney General Homer Cummings has said it was in violation of the Sherman Antitrust Law."

The prosecutor said the cartel permitted large companies to dispose of excess gasoline through controlled subsidiaries. He contended this was unconstitutional.

REFINERS INDORSE PROGRAM

GLADEWATER, Tex., Apr. 16.—More than 50 East Texas refiners tonight indorsed acceptance of the marketing pooling agreement and revised refiners control section of the code of fair competition at a large mass meeting. The meeting also instructed the refiners committee to accept the offer of the major crude allotting committee in Tyler tomorrow, subject to the terms of the agreement reached in Washington, including allocation of crude retention of market.

OIL CASE IN SUPREME COURT

TYLER, Tex., Apr. 16.—The first East Texas oil case to reach the United States Supreme Court will be argued May 8, the court clerk Monday notified F. W. Fischer, counsel for J. W. Smith and others, charged with conspiring to violate proration laws.

Five defendants in the case were alleged to have sought to induce an oil company property lease man to permit the installation of a by-pass line.

Possibilities of Potential Oil and Gas Fields in Northeastern Arkansas Areas Discussed

By A. F. CRIDER

Prepared for C. E. Harris, Conservation Agent, Arkansas Board of Conservation

In that part of Arkansas lying east of the Missouri Pacific Railroad from Little Rock to the Missouri state line and east of the Arkansas River from Little Rock to the Mississippi River, there is a territory embracing approximately 12,220 square miles which offers possibilities for oil and gas development. The possible source of oil and gas is from two definite geologic provinces, viz.: the Cretaceous, which is the source of oil and gas in southern Arkansas and northern Louisiana, and from the Paleozoic formations, the source of oil and gas in Oklahoma, Illinois and western Kentucky. These two problems are discussed in this report.

The area is a low-lying plane sloping gently to the south-southeast to the Mississippi from the sharp Paleozoic escarpment, the outline of which is shown on the map accompanying this report. The surface at the mouth of the Arkansas River is approximately 140 feet above sea level and gradually rises to the northwestern edge of the area to an elevation of 300 feet.

The only interruption of the normal south, southeast surface slope is Crowley's Ridge, a prominent topographic feature, extending from the Mississippi River at Helena, Ark., northward to Jonesboro, where it turns in a northeasterly direction and continues into Missouri to Cape Girardeau, on the Mississippi River.

The maximum width of Crowley's Ridge in Arkansas varies from one-half mile to 12 miles. At the southern end of the ridge near Helena, the elevation of the ridge is about 400 feet above sea level and gradually increases in height to about 500 feet on the Arkansas-Missouri state line. The crest of the ridge above the lowlands ranges from 100 feet in Arkansas to 260 feet in Missouri.

Any one interested in the origin of Crowley's Ridge as a most interesting erosional land mass remnant, which originally separated the Mississippi River on the west from the Ohio River east of it; and how the Mississippi River finally abandoned its channel on the west, out through Crowley's Ridge at three different places and joined the Ohio River at the present location of Cairo, Ill., is referred to C. F. Marbut in Missouri University Studies, Vol. 1, No. 3, 1902.

Geology

Gulf embayment sediments of Cretaceous, Tertiary and Quaternary age underlie the surface of the area under discussion. Cretaceous sediments were laid down on a broad down-warped valley of Paleozoic rocks intensified by erosion. The Paleozoic rocks outcrop west of the scarp (see map), and underlie the entire region to the east and appear again east of the Mississippi River, near the present position of the Tennessee River.

The top of the Paleozoic floor at Harrisburg, Poinsett County, was encountered in a well at a depth of 1,900 feet below sea level. In the southern border of the area, near the mouth of the Arkansas River, the Paleozoic floor has never been reached, but it will probably be greater than 6,000 feet. A few wells drilled along a broad area between Little Rock, Arkansas and Jackson, Miss., have encountered rocks of igneous origin with the possibility that these rocks may be closely associated with those of Paleozoic origin. If this is true, there is a submerged Paleozoic ridge along that trend in which the Paleozoic rocks are much higher than they are in the area immediately northeast and southwest of this trend. The shape of the Paleozoic floor is shown on the map by 500-foot contour lines.

Cretaceous Sediment

In northeastern Arkansas the oldest known sediments which overlap the Paleozoic rocks are of Cretaceous age. They outcrop at the surface in a few places on the west side of the area. They consist of glauconitic sand, clay and fossiliferous marl which is probably of Nacatoch age. This particular horizon outcrops from near Newark, Independence County, northeastward to just south of Powhatan, Lawrence County. South of Newark to Little Rock the Cretaceous sediments are overlapped by Tertiary and later rocks.

Cretaceous rocks cover the underlying Paleozoic sea floor from the Paleozoic escarpment on the west to the Mississippi River and beyond, and have been recognized in many of the wells throughout the area. The thickness of the Cretaceous varies from a thin veneer along the western border to 700 feet in a well in Poinsett County.

Tertiary Sediments

In a few localities along the Paleozoic escarpment from Little Rock to the Missouri line, and along the foot of Crowley's Ridge, rocks of Wilcox, Claiborne and Jackson age are present.

Midway Formation

Resting on the Cretaceous comes the Midway formation consisting largely of shale and lime. It is hidden by more recent sediments, except for a narrow outcrop between Little Rock and Newark, in Independence County. The Midway is reported in most of the wells, which reach a depth of 2,000 feet, as far east as Crowley's Ridge. One well near Colt, St. Francis County, penetrated the full thickness of the Midway at a depth of about 2,450 feet. The top of the Midway in that well was approximately 1,850 feet, giving 600 feet of Midway.

Wilcox Formation

The Wilcox, which overlies the Midway, outcrops along the foot of Crowley's Ridge from Harrisburg north to the Missouri line. South of this point it is present underneath the Claiborne along Crowley's Ridge and is recognized in well logs from the Paleozoic escarpment to the Mississippi River. Sand, shale and lignite make up the deposits of the Wilcox formation. The thickness of the Wilcox varies from a thin veneer on the west border of the area to 2,000 feet or more in the eastern and southern portions.

Claiborne Formation

The Claiborne formation outcrops along the base of Crowley's Ridge from near Harrisburg southward to the southern part of Cross County. It rests unconformably on the Wilcox and underlies the Jackson south of New Castle in St. Francis County. The Claiborne dips underneath the Jackson and is present in wells in the eastern and southern parts of the area. The Claiborne has not been recognized as a separate formation along the foot of the Paleozoic escarpment. Near Cabot, and just west of Beebe, Lonoke County, is an outcrop of Eocene that may be either Wilcox or Claiborne.

The materials which make up the Claiborne are quite similar to those of the Wilcox, especially the cuttings from wells. The maximum thickness of the Claiborne in the eastern and southern part of the area does not exceed 1,000 feet, and over the greater part of the area it is less than half that thickness.

Jackson Formation

The youngest Tertiary formation which outcrops in northeastern Arkansas is of Jackson age. Its northernmost surface exposure is at the foot of Crowley's Ridge about 3 miles south of Wynee in southern Cross County. It is present along Crowley's Ridge southward to a point just north of Helena in Phillips County. It outcrops in the hills west of Arkansas River as far northward as the southeastern corner of Saline County, and dips eastward beneath younger sediments and underlies the greater part of southeastern Arkansas. It consists of fossiliferous marls of Marine origin, interbedded with varicolored clay and some sand. The maximum thickness of the Jackson, as determined by well logs in the Schaffer wells in Township 11s, Range 3w, DeSha County, is 600 feet or more.

Pliocene and Later Sediments

With the exception of the few outcrops of Midway, Wilcox, Claiborne and Jackson formations, mentioned above, the entire northeastern part of Arkansas is blanketed with sediments younger than Jackson. The Pliocene sand and gravel, and the Loess, are limited to Crowley's Ridge, and a narrow fringe on the foot of the Paleozoic escarpment. More recent alluvial deposits blanket the entire area from the Paleozoic escarpment to the Mississippi River, with the exception of Crowley's Ridge, and cover the underlying formations, from the Jackson to the Wilcox, to a depth varying from a few feet at the foot of the Paleozoic escarpment to 200 feet or more in the lowlands.

The structural feature of northeast-

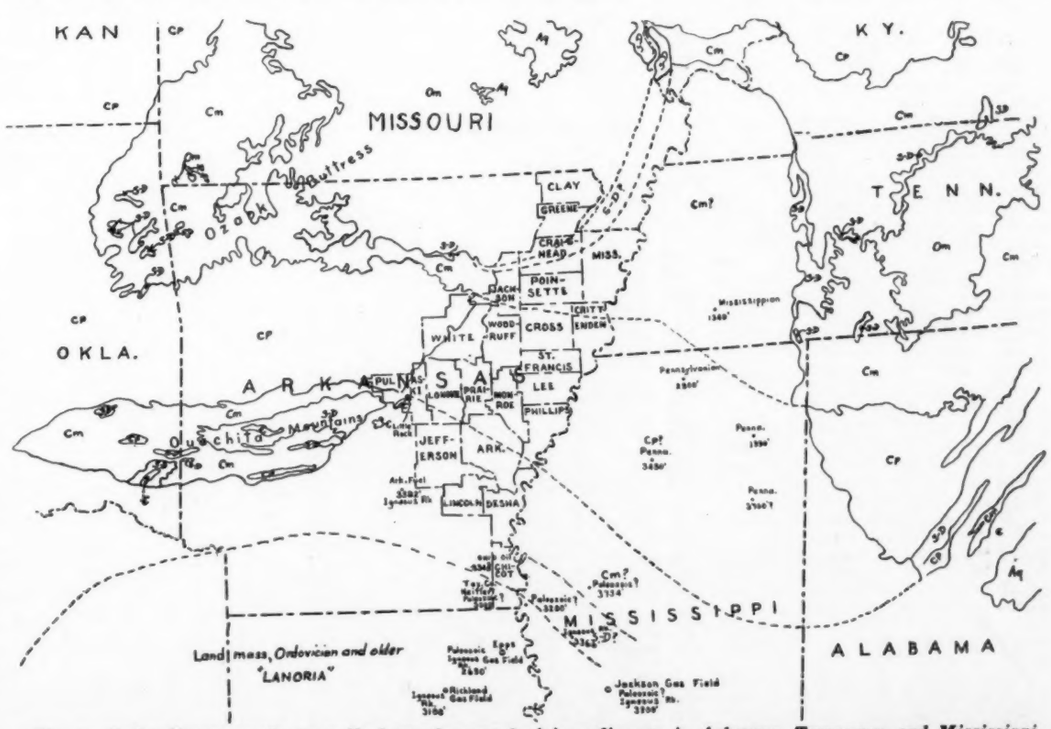
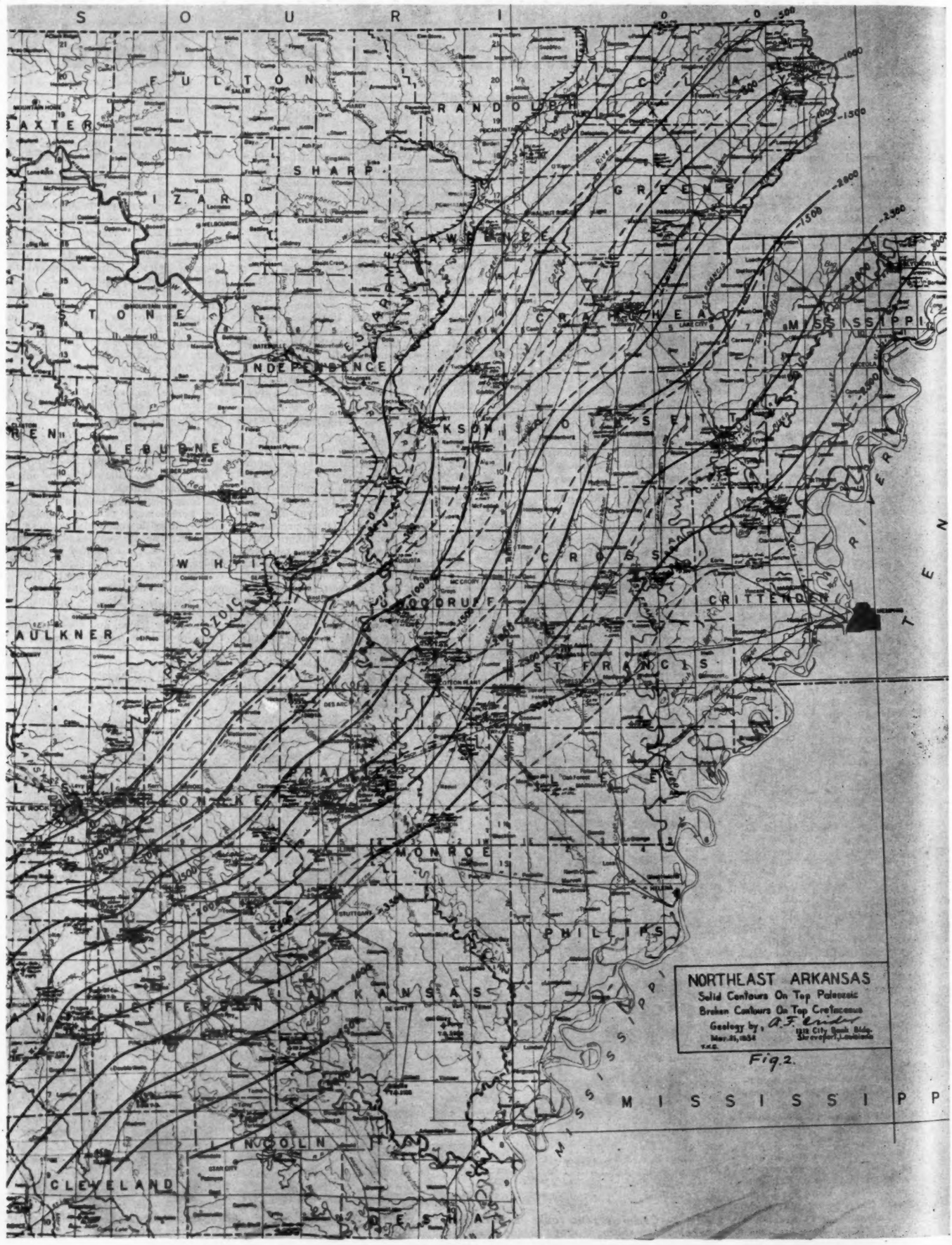


Fig. 1—Carboniferous rocks in wells beneath coastal plain sediments in Arkansas, Tennessee, and Mississippi taken from geologic maps of the area. Legend: "CP" Pennsylvanian; "Cm" Mississippian; "S-D" Silurian-Devonian; "Om" Ordovician; "C" Cambrian and "Ag" Pre-Cambrian

ern Arkansas, in general, is a homocline with Cretaceous and younger formations dipping gently to the south-southeast. At present there is only a limited number of wells drilled in the area, and we are dependent entirely on information gained from well data for the determination of the subsurface structural deformation. When more detailed subsurface data are available, there is the probability that favorable structural traps for oil and gas will be revealed.

Little is known of the structural deformation of the Paleozoic formations. These rocks underlie the entire area, and

(Continued on Page 49)



Present Program of Modernizing Oil Refineries Involves Broad Field of Engineering Research

By H. R. SWANSON and M. B. COOKE
Alco Products, Inc.*

The developments in refinery engineering have been so numerous during the past few years that it is difficult to survey the field and quickly concentrate into a short summation the so-called major points. While all refiners have common problems and are consequently interested in their solutions and methods of solution, not all developments in the refining field are of universal interest. No attempt will be made to narrate the historical in view of the interest already shown in the up-to-the-minute developments which are, for the most part, the outgrowth of the research laboratory and differ from research only in the relative scale of application.

For convenience in presentation we have decided to present our ideas of modern developments in the order of the natural flow of crude oil from the field and through the refinery so far as possible.

Stabilization of Crude Oil

We are all familiar with the efforts and large amounts of money which have been expended during the past 15 years with the view of reducing the losses of volatile constituents of crude oil before refining. At the same time, efforts have been made to reduce corrosion of storage equipment due to hydrogen sulphide. It is now recognized that prestabilization of the crude will accomplish these results, and in addition, at no additional cost for fuel oil, salt and b.s. can be practically eliminated. The elimination of hydrogen sulphide is an important item if it is realized that this gas causes the loss of volatile hydrocarbons when it evaporates from the crude due to its high vapor pressure. The losses entailed by corrosion by this gas are large and in some instances the hazard of explosions is suffered in storage tanks. The removal of b.s. and salt prior to distillation has a greater beneficial effect in permitting smooth control of distillation equipment than is generally realized. Major benefits of prestabilization of crude are also reflected in the construction costs for new refining equipment due to lower costs for crude storage, and vapor recovery plants are unnecessary for gathering vapors from storage tanks. If the predistillation or prestabilization is practiced at the refinery, the latter becomes less susceptible to climatic changes and warmer water for cooling purposes can be tolerated, safety of operation increased and the investment is soon paid off in savings in refinery operations.

The one obstacle to prestabilization of crude oil in the field has turned out to be one which is not technical but legal. The present laws and regulations are such that the separated gasoline from the stabilizer, as well as the crude, take higher transportation rates to the refinery than the original crude. This feature of the regulations and laws should be changed if industry is to benefit from this development and if the natural resources of the country are to be conserved to the highest degree.

Primary Distillation Equipment

During the past two years many units, for fractionating crude oil into several products of desired boiling range, have been put into operation to produce results unthought of five years ago. As an example, first we will mention a unit built in Grozny, Russia. Table 1 shows the distillation characteristics of the streams regularly drawn from the atmospheric stage.

TABLE 1—GROZNY ATMOSPHERIC DATA
(Engler distillation)

Date—	Gasoline E.P.	Naphtha I.B.P.	Naphtha E.P.	Kerosene I.B.P.	Kerosene E.P.
November 9	320	327	387	414	581
November 10	327	333	405	417	597
November 11	309	325	396	406	588
November 12	315	327	392	421	588
November 13	307	324	390	408	576
November 14	316	333	399	419	592
November 15	316	322	387	406	579
November 16	316	331	390	403	583
November 17	315	327	394	403	574
November 18	309	327	396	405	576

TABLE 2—OPERATING DATA ON CANFIELD OIL CO.'S NEW UNIT AT CORAOPOLIS, PA.

Crude unit—	Gravity	Color	I.B.P.	90%	E.P.
Overhead	66.5	26	94	292	320
Solvent side stream	52.9	..	315	358	390
Kerosene	46.5	..	395	...	539
"300 distillate"	40.7	..	503	...	639
Gas oil	36.4	..	600	...	712
Long residuum bottoms 82 S.S.U. at 210° F.					
Rerun of 66.5 Stream 23% Crude					
Overhead	73.5	30+	86	223	246
Side stream	62.3	30+	195	249	263
Bottoms	...	..	265	...	345

Another unit which has recently been completed and put into operation in a Pennsylvania refinery gives the results in Table 2.

The gasoline stream is rerun in a bubble tower equipped with a steam preheater and reboiler. Three products result from the rerun tower, overhead, side stream and bottoms. This unit is somewhat unusual, very simple of design and easily operated when it is considered that eight finished streams are made continuously from the crude oil distillation operation, five of which have an overall boiling range below 500° F.

Stabilization of Light Products

Stabilization of distillates is now a necessity and not an accessory, so to speak, for all of us recognize its importance to the consumer. Vapor lock is now practically unknown, while a few years ago we were sitting in our committee meetings attempting to determine who was responsible for the coughs and jitters of a lot of automobiles. The automotive group passed it over to the refining technologists and they promptly returned the "forward pass." Aside from these effects, the refiner gains enough to make the extra operation selfsustaining in most cases and in others makes a profit by being able to market specialties, such as propane and butane, etc. Stabilization has been responsible almost entirely for the recent interest in propane dewaxing. Without cheap propane this process would have remained in the research laboratory, where it has been known for years.

A few years ago designs called for removing 12-15 per cent of raw P.D. as overhead in a rough cut. This left 85-88 per cent to be treated. Today we are designing for 20-26 per cent overhead, leaving 74-80 per cent only to be treated. The latter design calls for very fine fractionation so that no material goes overhead which has to be treated. The old design will not function for deep cuts, such as 26 per cent, because of lack of fine fractionation. In a plant of 10,000 to 20,000 bbls. per day you can readily see the economy in cutting down the amount to be treated by 1,000 bbls. or more in 18,000 bbls. of P.D.

Stabilization lowers fire hazards in treating, eliminates losses by volatilization, aids in the preservation of the octane rating of gasolines and in general makes the treating problem much easier than it has been. The substantial elimination of propanes and lighter permits the blending of larger proportions of butane and heavier in the finished motor fuel without exceeding vapor pressure specifications.

Clay Treating Distillates

Stabilized cracked distillates in a great number of cases are low enough in sulphur to meet the 0.1 per cent limit for sulphur and in these cases we consider clay superior to all other treating methods. If the treating by clay is to be performed on rerun stock, then it is best to first stabilize and then treat and rerun.

This may be done by any one of the three recognized clay systems, the Gray Vapor Phase, the R. K. Stratford Slurry Process and the Osterstrom Liquid Phase Clay Treating Process. Time does not permit a discussion of these processes here, but we feel confident that these clay processes will find increased use in the near future. With yields of 20,000-70,000 bbls. per ton of clay, the cost of clay fades from the picture almost entirely. Losses by any of the clay processes are negligible and the octane preservation is almost 100 per cent. Color and gum stability are very satisfactory and due to the popularity of dyed gasoline, it is no longer necessary to produce 25 to 30 color gasoline. Treatment of cracked distillates is carried out primarily for odor and gum removal and gum stability for storage.

If a distillate or portion of a distillate has to be desulphurized, then we propose separate treatment by the Stratford Rapid Contact Centrifuge Separation process.

This process, which is well beyond the development stage, is ideal for desulphurizing of distillates. Twenty months' commercial plant operation in an eastern refinery (5,000 bbls. per day) has revealed that corrosion of equipment is practically nil and corrosion of rerun equipment is minimized. Only 5-10 per cent as much SO_2 is evolved in rerunning as is obtained when the same distillate is treated in a batch agitator system. The recovery of saleable distillate is greater and the quality of the fuel bottoms from rerunning is much better and commands a higher price.

Propane Dewaxing

Great interest has been shown in propane dewaxing during the past two years. Propane offers great possibilities when compared with the pentane-hexane series in use for so many years in the form of naphthas for dilution in dewaxing works. Propane, like naphtha, does not permit filtration or settling of wax at a temperature near the desired pourpoint of the finished oil. Its main usefulness consists of its ability to precipitate wax from dirty stocks in a condition which permits of settling or filtration, whereas neither the cold settling nor the centrifuge methods will function on this type stock.

The advantages of dewaxing lub stocks by the use of propane as the solvent diluent are widely recognized. Important advances in dewaxing technique have been made through intensive study of crystal formation. One of the major advances is the recognition of the detrimental effect of excess diluent upon crystal growth. It is important not only to maintain the amount of diluent in the original blend to a minimum, but also of even greater importance to remove diluent as released by the wax component upon crystallization. If not removed, this diluent is merely in excess and retards the crystallization of waxes still in solution.

Considerable progress has been made in the past year in the development of an entirely continuous commercial process. The desirability of continuous operation of all component units making up the process, over semicontinuous or semibatch operations is obvious. This improvement should lend impetus to the more general adoption of propane dewaxing which is still one of the newer refining processes available to the industry.

Acetone-Benzol Dewaxing

Another important dewaxing method quite different from propane is the acetone-benzol process of the Texas Co. While several investigators have worked with solvents of varying natures, acetone-benzol offers a means of dewaxing long boiling range distillates without the inclusion of any other cut, such as gas oil, etc., and at approximately the same working temperature as the desired pourpoint, an operation characteristic which is unique. All sorts of stocks can be dewaxed employing a temperature of wax crystallization approximately equal to the desired pourpoint of the distillate.

Improvement in Viscosity Index

One of the outstanding developments of the past year has been the solvent treating of lubricating oil stocks. No one familiar with the art of refining will completely deny the superior characteristics of Pennsylvania motor oils in the past. The relatively high carbon residue and relative cost of the crude oil have handicapped the more extensive use of the oils. In order to fulfill the exacting requirements of the modern automobile engine, refiners have not lost time in attempting to solve the problem of high viscosity index and at the same time produce an oil of low Conradson carbon. The symposium at Chicago last fall served to crystallize opinion on the subject of solvent extraction of oils. While this work started with the view of raising the quality of low grade lubricating oils to Pennsylvania grade, the work has

*Read before meeting Western Petroleum Refiners Association in Excelsior Springs, Mo., April 5 and 6.

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already revealed that Pennsylvania oils can be improved in quality and it will not be long before motor oils will be on the market, made from Pennsylvania stocks, which will surpass all oils in quality so far produced. This work in solvent extraction has changed the course of research and development from hydrogenation and chemical synthesis of lubricating oils to extraction work. The economics involved indicate that the two former methods of attack are not particularly attractive as money makers in view of today's markets. Solvent extraction has added to our knowledge of lubricating oil refining and at the same time insures our country of an adequate supply of high-grade lubricants for years to come. This field of development is also of unusual interest since the major portion of prior development work in refinery technology has been carried on in distillation and cracking. The solvent extraction program is the first concentrated effort shown on improvement in lubricating oils for several years.

The introduction of propane into dewaxing work has resulted in a process whereby petrolatum stock is easily resolved into about 50 per cent of high melting point wax. No longer is it necessary to throw this valuable raw material into cracking stock for the want of a better outlet.

High Melting Point Waxes

Another interesting application of solvents in the field of refining petroleum oils is the production of exceptionally high melting point waxes from slackwax. Markets are constantly being opened for these specialties which no doubt will find increased use in the near future.

Asphalt Manufacture

There are now three commercially feasible ways of removing asphalt:

1. By atmospheric distillation as a residue.

2. By conventional acid treating as a sludge.

3. By antisolvent action of liquified normally gaseous hydrocarbons.

(1) The first method is quite effective from a rough separation standpoint but due to overlapping of boiling ranges, it is difficult to make sharp separation and the resulting breakup gives a distillate with some asphaltic materials carried over by entrainment and overlapping boiling range and a residuum asphalt carrying some heavy oils. If the operation is carried too far cracking may result which gives further complications.

(2) The conventional acid treating is quite effective, but results in an asphaltic sludge which is a combination of the products of this reaction and, while it gives an asphalt free treated oil it does not give an asphalt of any commercial value.

(3) The use of a petroleum spirit solvent is old in laboratory method and use, but has only recently been put to any extensive use commercially.

The availability of large quantities of liquid (normally gaseous) hydrocarbons has made the use of the laboratory Holde-asphalt method attractive and resulted in considerable semicommercial separation of asphalt from crudes or crude fractions bearing the same.

The method has inherent advantages over both the distillation method and the acid-chemical method, in that both temperature effects and chemical complications are eliminated.

By the antisolvent method the asphalt can be separated by gravity. Total oil can be recovered without the use of chemicals or heat. On the other hand, a valuable type of asphalt is obtained, being free from oil and produced without chemical or heat reaction effects and products.

A modification of the method is to use in combination with No. 2, utilizing only small quantities and even more selective re-agents, so that more effective separation can be made and at the same time the asphalt will not be contaminated or chemically affected.

By the antisolvent effect of these normally gaseous hydrocarbons very pure heavy bitumens can be separated from asphaltic crudes and then by reblending with selected oil fractions, asphalts or bitumens of any melting point or penetration can be obtained. This has a very attractive bearing on the control of oxidation of these bitumens, as not only the amount of flux can be determined but also the characteristics of the flux oil.

Trends in Cracking

Liquid and semiliquid phase cracking processes have received so much attention during the past decade that we hesitate to take up a discussion of the developments at this meeting. Most every refiner knows what the developments have been and what the units will and will not do. It is significant that the latest developments in these systems has been chiefly one of lowering the pressure and increasing the temperature. The increase in demand for high octane gasoline has been, in fact, responsible for this trend.

Among vapor phase processes, it is now recognized that Gyro is the vapor phase process in which is incorporated the latest theories of heat transfer and flexibility of operation. Any kind of cracking stock can be charged without changing the system, but in spite of this broad flexibility the operation is not decreased in effectiveness and efficiency. The reasons for this are:

1. The furnace is the most important part of a cracking unit installation and the Gyro furnace has been designed with the most careful consideration of this fact.

2. The unpopularity of the vapor phase system of cracking was brought about by failure of the sponsors to recognize the fundamental factors governing cracking. We list them as follows:

(1) Mean effective reaction temperature.

(2) The reaction time relation to the mean effective reaction temperature.

(3) The time-temperature characteristic in general—that is, the relationship or ratio of the cracking effect in the heating tubes to the cracking effect in the soaking tubes.

(4) The temperature gradient in the vapor film at the tube walls which is governed by the film coefficient, the heat intensity and heat intensity distribution.

Alco Products, Inc., has designed, constructed and operated a new Gyro cracking unit which is representative of the design of which we are speaking. Coke formation in the tubes has been practically eliminated and smooth operation for several weeks at a time has been shown to be possible. Gas losses are now as low as competitive units due to proper correlation of the above factors and to the development of the polymerization plant, which is a part of modern Gyro installations.

Chemicals From Cracked Gas

A few years ago the refiner was not interested in products out of the field of motor fuels, burning oils and lubricants. Coke production was an unwelcome ecusin which had to be taken care of and asphalt was in the same classification. Today the refiner is going into other lines; starting with the sale of articles in service stations, not made by him, such as tires for cars, body polishes and auto accessories, whereas the trend now is for the refiner to sell products he can make from petroleum such as solvents and chemicals, both organic and inorganic. We believe that it will be of interest to refiners, therefore, to call attention to the fact that there are now dozens of solvents and chemicals which are made from gases from the Gyro cracking still. Practically all of the ethylene glycol for antifreeze mixtures is made from Gyro gas. A new resin, competitive with resins like Bakelite, is now being made from Gyro gas and others will follow shortly. Development work is now well along on amines, both the monamines and diamines, which will increase the utilization of Gyro gas. It should be borne in mind that it is no longer true that Gyro makes more gas than some of its competitors, rather the percentage is the same based on charging stock to the cracking unit, but the composition is entirely different. Gyro tail gas contains more than 23 per cent ethylene and more than 12 per cent propylene and so on. The total unsaturates in Gyro gas is about 50 per cent, which is two or three times as much as any other cracking system yields. This is why we can expect to see numerous commodities come from Gyro gas in the future. It is almost ideal as a raw material for the synthetic chemical industry due to its unsaturation and consequently its chemical activity. Butadiene is found in Gyro distillate and gas, and no doubt it will find increased use in the synethetic rubber field.

CANADIAN GASOLINE DEMAND

The domestic consumption of gasoline decreased 18,231,000 imperial gallons in 1933 compared with 1932, according to data which has just been released by the Canadian Bureau of Statistics. This decrease, amounting to 3.5 per cent, was spread over all of the provinces none of which showed an increase in 1933.

As in former years the province of Ontario accounts for approximately 50 per cent of the gasoline consumption of Canada with a total of 229,615,000 gallons for 1933. The smallest consumption was in Prince Edward Island where sales in 1933 totaled 2,512,000 gallons.

Table showing gasoline consumption in Canada for 1933 and 1932 based on gasoline tax payments. Data in imperial gallons:

	1933	1932
Prince Edward Island	2,512,000	2,692,000
Nova Scotia	18,707,000	19,021,000
New Brunswick	12,520,000	13,672,000
Quebec	87,075,000	91,123,000
Ontario	229,615,000	236,689,000
Manitoba	24,319,000	26,135,000
Saskatchewan	31,795,000	33,636,000
Alberta	40,300,000	41,300,000
British Columbia	28,704,000	39,458,000
Total	485,550,000	503,731,000

FREIGHT RATES BELIEVED HIGH

ARTESIA, N. Mex., Apr. 16.—Representatives of the Chambers of Commerce of Artesia, Carlsbad and Roswell, the two refineries in Eddy County and Getty Oil Co. met with representatives of the Atchison, Topeka & Santa Fe Railroad here the past week to discuss freight rates on road oil. The meeting resulted in a general consideration of rates, but no change was announced. Following the burning recently of the New Mexico Road Oil Co.'s refinery at Dayton, the rates in effect from that point to New Mexico points were canceled. Subsequent developments indicated that a new company might be interested in rebuilding the plant, but found the freight rates prohibitive. Governor Hockenhull then became interested in the situation and communicated with the various civic organizations in regard to a concerted movement to secure a reduction.

N. K. P. N. Pontoon and Landing on the Road to the Oilfields in Sumatra

Resurfacing of Corroded and Worn Equipment at Refineries Found Practical and Economical

By H. R. LELAND
General Metallizing Co.*

As acquaintance with metallizing has been gained, the possibilities have been more clearly defined, and the skepticism with which we were formerly confronted has now almost completely disappeared. We have tried to impress upon our friends the fact that metallizing is not a cure-all but a well principled science with a definite position in our economic scheme of things. As each day's work presents itself, we find, in this business as in others, a solution through the application of plain common sense built to standard specifications.

Contracts such as we are now undertaking could not have been accomplished with the old type standard gun, because of its insufficient speed. A unit has now been developed to deposit aluminum about 2½ times faster than could the standard gun, also to spray lead 3½ times faster. This unit is known as the high speed model, and will deposit tin, cadmium and zinc with the same relative increased speeds. It will also spray the metals of higher melting points at speeds slightly increased over the old type.

Hard Steel Coatings

In answer to the demand of those specializing in the application of hard metal surfaces—such as are necessary in the rebuilding of plungers and shafting, a hard metal model was perfected. It is with this model we spray KA_2 stainless, the high carbon steels, bronze, monel metal, copper and aluminum. No. 12 Brown and Sharp gauge wires are used.

Both of these models were designed to assure density and the fineness of metal coating that is essential for nonporosity.

A description of the oldest installations giving essential details and comment, and a brief description of a number of others will best answer the very natural questions: For what refineries has work been done? What was the nature of the work? What were the results?

Probably of greatest interest to most of you is the work that has been done in the Mid-Continent Field, and elsewhere with pure aluminum. This metal does not react to hydrogen sulphide.

Some will be more interested just now in lining acid treating tanks with antimony lead and some in the rebuilding of worn and scored shafting, piston rods, plungers and pump parts.

Experience has proven that a thin nonporous coat of aluminum can be bonded to the inner wall of a reaction chamber, and made to stick in the presence of hydrogen sulphide vapors and liquid over considerable periods of time, the chamber being normally operated at around 750° F. and 200 pounds pressure.

Our first work in a refinery with aluminum was done in April of 1933. We contracted with the Producers & Refiners Corp. whose refinery is located in West Tulsa, to metallize sections of the interior walls of one of their 10'x 40' Dubbs coke chambers. Hard, dry coke is made. The cleaning out is accomplished by means of cable and finished by men with sharp picks.

It was decided that about 35 square feet be covered in two sections, one in the dome and the other about 15 feet lower on the chamber wall and covering a seam. The dome section would catch the most active attack from hydrogen sulphide vapors. The lower section would be subjected to a somewhat different action and be wholly within the zone where men work with picks when disengaging the coke from the side walls.

One of the sections to be metallized was carefully sandblasted using flint sand passing 12-mesh and remaining on 16. The aluminum was then applied in seven coats to a thickness of thirteen-thousandths of an inch. The lower section was treated in exactly the same way. After the metallizing was completed—nonmetallic lining was used to cover that part of the chamber wall not metallized. It was allowed to extend just over the edges of the aluminum.

In about five months an inspection was made. Present at the time was an employe of the refinery, the chief inspector of the Universal Oil Products, and an inspector from another refinery operating Dubbs equipment, and the writer.

Aluminum Preserved

Most of the coke had been removed from the dome section by means of scrapers and a rotary wire brush. When we arrived upon the scaffold we could see what appeared to be the glisten of the aluminum. We dug it with knives and scraped it, and dug coke out of small holes each time finding the aluminum. A discussion arose as to the probable effect upon the aluminum coating in case it were ruptured by a pick in dislodging coke. For purposes of observation and later report, an area was marked and about 20 blows were struck with a sharp pick, each blow passing through the aluminum lining into the shell.

Other inspections were made from time to time but in February of this year, every particle of coke was removed from all metallized portions of both sections, also from the steel shell surrounding so that edges of the coat could be seen. The surface of the aluminum was polished. Every part of the shell within the limits of this section was completely covered. The holes made by the pick were partly filled with coke, but there was no evidence of fracture or break of the coating surrounding these holes.

Upon examination of the lower section, we found five places where the aluminum had been broken off. Four were each about 1 inch in diameter. The fifth extended along a welded seam for a distance of 6 inches, roughly about one-half of an inch wide at one end and 2 inches wide at the other. There were numerous other pick marks but these were the only places where the coating had been dislodged. The area of the broken parts to the total covered is about one-quarter of 1 per cent.

Free From H_2S Corrosion

This lining has been in service a sufficient length of time to prove pretty definitely that aluminum does not react to hydrogen sulphide, that a nonporous lining can be deposited upon the walls of the chamber and be given sufficient bond so that it will not be dislodged during the normal operation of these units, that from present appearances we should reasonably expect the aluminum lining to last for years with comparatively inexpensive repairs to be made annually.

In May of 1933, one section of a Dow surge pot was brought to our shop by the Wilcox Oil & Gas Co. from its Bristow refinery. Measurements of the inspector showed a loss of about six hundred-one thousandths of an inch. There was evidence of considerable erosion.

The shell was full of oil and after preliminary sandblasting it was necessary to draw the oil with heat. Fifty thousandths inch of aluminum was applied. The thickness seemed advisable to combat the erosion. An extension nozzle was used to reach those portions back of the 6-inch flanges.

After 1,800 hours the bonnet was removed. The surface of the aluminum still retained the characteristic roughness of a new coat showing that there had been no erosion but a removal of corroded particles leaving new surfaces constantly presented to corrosive influence. Rapid movement of vapors and liquids was accelerating the action.

A small piece about 2"x3" had broken out as a result of the great thickness of aluminum applied. This place was quickly and easily patched. The regular .018 of an inch would have been sufficient. In November when the regular inspection was made by Mr. Stewart, no measurable loss was found.

The last week in December, 1933, we coated 130 square feet in its 4-foot dephlegmator and two additional sections of its surge pots. In February, 1934, 10 coats of aluminum were sprayed on the inside of a 10-inch dephlegmator leg and elbow, and in March the insides of the 6-inch valve used under the same unit was coated.

Corroded Water Tubes

The problem of the Oklahoma Gas & Electric Co. at its plant at Oklahoma City, Okla., is of interest. The tubes in the water backs of its boilers were being attacked and severe pitting from heat corrosion resulted. We covered the corroded sections of 162 tubes with aluminum in November, 1932. The examination one year later proved the application to have been entirely successful.

For the Kanotex Refining Co. we covered 513 square feet in the bottom half of its 7-foot bubble tower.

We are working today at the refinery of the Tide Water Oil Co. at Drumright, Okla., lining a 6'x40' vertical coking drum with aluminum. This is the third chamber we have metallized for this company.

Some of our jobs of lead lining were: Acid contact tanks for Globe Oil & Refining Co. in March and April of 1933; acid treating tank for Rock Island Refining Co. in June of 1933, and the lining of the cone bottom and a part of

(Continued on Page 44)

*Read before meeting of Western Petroleum Refiners Association, Excelsior Springs, Mo. April 5 and 6.

The Oil Man's Calendar

April

19-20—National Petroleum Association, Cleveland, Ohio.

20-21—Fort Worth, Tex., American Petroleum Institute, southwestern district meeting, division of production.

22-27—New York, American Chemical Society, semiannual meeting.

May

1-4 — Washington, D. C., U. S. Chamber of Commerce.

3-4-5 — Kansas City, Mo., twelfth Midwest regional meeting of American Chemical Society.

9-10-11 — Tulsa, Natural Gasoline Association of America, New Hotel Tulsa.

12-19—Tulsa, International Petroleum Exposition.

14-21—American Institute of Chemical Engineers (tentative), Waldorf-Astoria, New York.

15-17—Tulsa, Natural Gasoline Association of America.

16—Tulsa, Mid-Continent Oil and Gas Association, annual meeting.

17—Tulsa, Independent Petroleum Ass'n. of America, Mayo Hotel.

17-18—Roanoke, Va., Virginia Oil Jobbers Association, and Virginia Oil Men's Association.

21-22—Lake Charles, La., National Oil Scouts Association of America, annual convention.

21-22—New York, American Gas Association Joint Committee Conference of Production and Chemical Committees, Hotel New Yorker.

22-24 — Pittsburgh, Pa., midyear meeting, A. P. I. divisions, William Penn Hotel.

June

7—New York, Automobile Chamber of Commerce.

14-15—State College, Pa., Pennsylvania Grade Crude Oil Association.

14-15—Northwest Petroleum Association, North Dakota division, place to be decided later.

17-22—Saranac, N. Y., Society of Automotive Engineers, Saranac Inn.

25-29—A.S.T.M. annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

25-29—American Society of Mechanical Engineers, Denver, Colo.

28-29—State College, Pa., Pennsylvania Grade Crude Oil Association.

28-29 — Charleston, W. Va., West Virginia Oil Marketers Association.

September

9 — Wernersville, Pa., American Trade Association executives.

10-14 — Cleveland, Ohio, American Chemical Society.

19-21 — Atlantic City, N. J., National Petroleum Association.

October

1-5—Cleveland, Ohio, National Safety Council, Cleveland, Statler, Carter and Hollenden Hotels.

9—Michigan Independent Petroleum Distributors Association, place to be named later.

16-18—Big Four State Jobbers Association Convention, Kansas City, Mo.

29—American Gas Association Convention and Exhibition, Atlantic City, N. J.

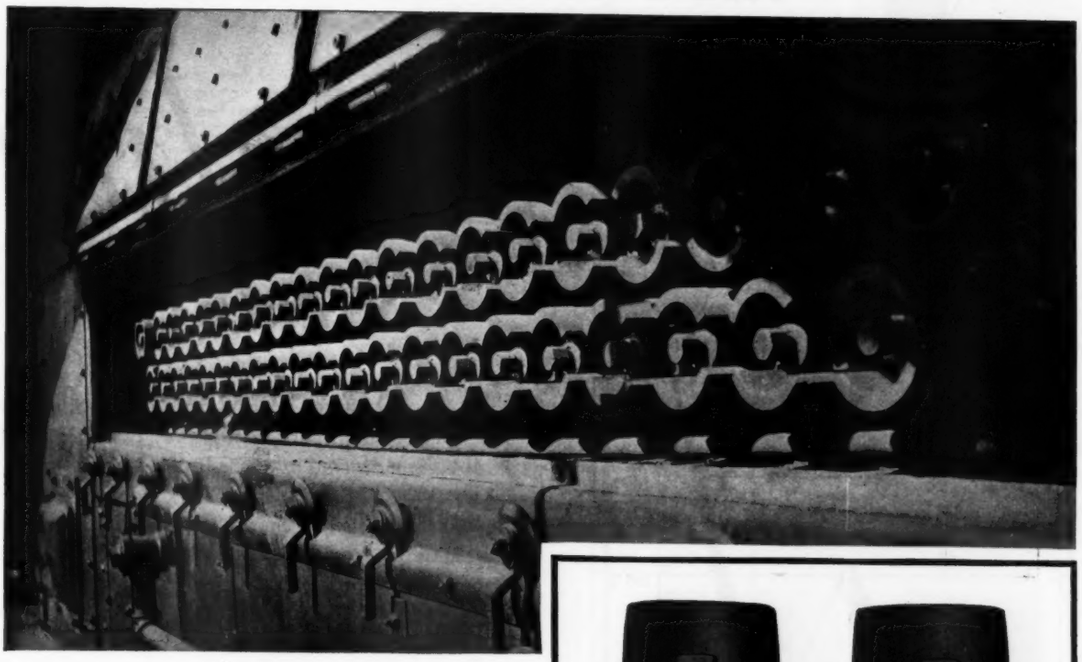
November

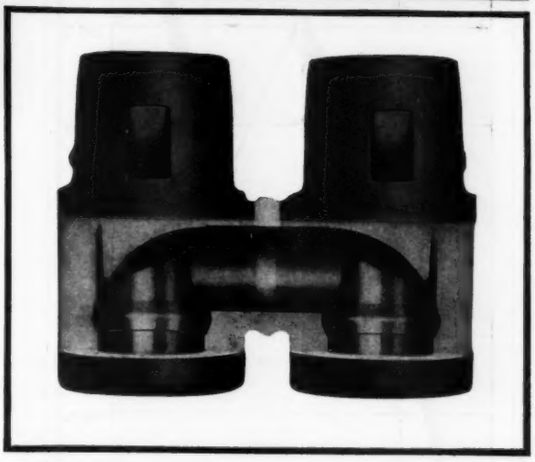
5-9—Cleveland, Ohio, Automotive Service Industries Show, Cleveland Public Auditorium.

Los Angeles, Calif., American Association of Petroleum Geologists, Pacific section.

12-15—Dallas, Tex., annual meeting, A.P.I.

KELLOGG FORGED RETURN HEADERS





The body of the Kellogg "Smooth-flow" return header is composed entirely of forged material with the consequent soundness, toughness and reliability commonly found in a forging.

These headers can be furnished in plain carbon or alloy steel, in all standard sizes, in the conventional two hole return header, the box-elbow type or the multiple-hole type.

Inquiries should include data regarding furnace tube diameter, operating pressure and temperature, center to center dimension of tubes and material preferred.

A Kellogg "Smooth-flow" header sectioned to expose the flow line, the walls of the cross-over section and the deflector plugs.

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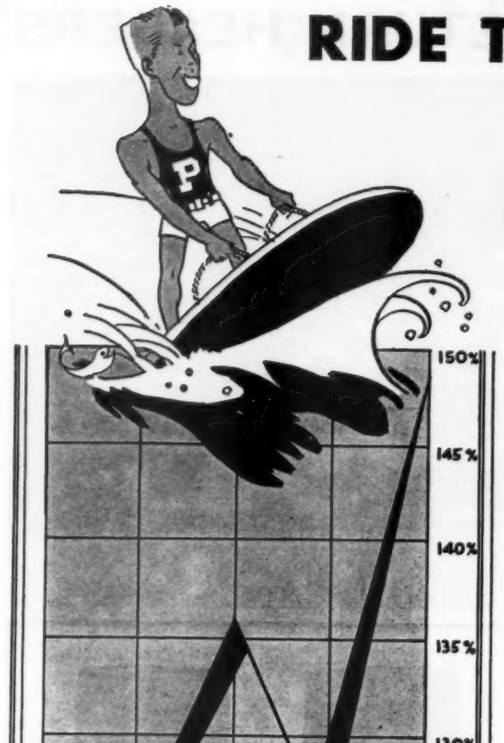
RIDE THE CREST OF THIS *Quality* WAVE!



SALES OF PENNSYLVANIA LUBRICATING OILS

The chart above is based on the year 1929 as 100%. With one exception, each year since 1929 has shown a remarkable growth in Pennsylvania oil sales.

SALES of Pennsylvania motor oils have gone up and up and up! Today more than one-third of all U. S. motor oil sales are Pennsylvania.

This is QUALITY business. It is growing because modern motors *need* Pennsylvania quality, and because more and more American motorists recognize that need.

You can share in Pennsylvania's growth. You can share the profits these oils are making right now for aggressive, quality-minded distributors. You can share the future they are building on a solid quality-foundation.

Take on and push a Pennsylvania motor oil sold under the membership insignia of the Pennsylvania Grade Crude Oil Association!

Such an oil sells easier and faster, and it *stays* sold. The emblem is widely known to motorists. The Association's advertising is making it even *better* known. The emblem assures the public that the Association's minimum standards of quality have been met. It will give you a good introduction and a splendid background. It will help you sell the *special* advantages of your particular Pennsylvania oil.

Today's conditions call for *quality* selling. Meet them with an emblem Pennsylvania oil!

PENNSYLVANIA GRADE CRUDE OIL ASSOCIATION
Oil City, Pennsylvania

WE ADVERTISE THIS EMBLEM

A series of full-page advertisements in "The Saturday Evening Post" and "Time" is telling the story of Pennsylvania oils and the insignia of the Association. This advertising is promoting your business. Use it! Send reprints to your customers!

BETTER OILS FROM THE GROUND UP!

Methods Used for Marketing Natural Gasoline Directly Influence Retail Motor Fuel Prices

By S. S. SMITH
Shell Petroleum Corp.*

Motor fuel, by virtue of storage facilities and delayed reaction between consumers' demand and manufacturers' output, follows rather slowly the laws of supply and demand. In contrast to this, natural gasoline furnishes our best proof of the functioning of that same law. This is true since (1) the supply, or amount manufactured, is, with slight variations, almost constant; (2) because it is a volatile product expensive to store (total storage comprises 10 days' output); and (3) because its routes to market are flexible, and therefore reflect the actual economics of such routing.

Considered from the standpoint of the long-time picture, there are three major factors affecting supply. East Texas has largely replaced West Texas crude to the extent of some 20 per cent of the total supply available in the United States. The gasoline manufactured from East Texas crude, even by straightrun operations, is such that it has an excess of volatility during some seasons of the year, and in the summer time requires stabilization to meet motor fuel specifications. The Panhandle area has contributed a major increase in gallonage during the last year as a result of the sour gas bill, and freely issued stripping permits of the Railroad Commission. In this connection, it must be noted that Panhandle natural gasoline, because of its relatively low volatility, is particularly susceptible of entrance into the motor fuel market by stabilization. The recent increase in Panhandle production is supplemented by an increase in the Oklahoma City field production brought about by major construction of recycling plants for gas lifting of crude. For some years there has been a steady increase of cracking plant facilities and likewise steady increase of efficiency in recovery plants in connection with refinery operations to such an extent that practically all of the better equipped refiners are in a position to manufacture and market motor fuel of sufficient volatility with recourse to outside supply of natural gasoline.

Seasonal Influence

In contrast to the long-time factors which are preponderantly in the direction of a decreasing demand for natural gasoline, there are several short-time factors which deserve consideration. Seasonal demand for natural anticipates ultimate consumers' demand by approximately three months, because refiners must manufacture consumer specification gasoline approximately that length of time ahead of consumers' use. The results of this seasonal fluctuation in demand are that prices rise throughout the summer and early winter, but there is a surplus of natural and decline in prices through the late winter, spring and early summer. The greatest effect of the seasonal variation is to recurrently change the route of natural gasoline to market. Many refineries are encouraged to and do use natural for their own blending operations when the prices are low; continue to use as prices rise and only cease to use when prices are such that there is actual monetary loss on gallonage blended for use in motor fuel. As is usual in human procedure, when the price is falling, nobody buys, in expectation of lower market. At any time when the price differential is too great between natural and motor fuel, the bulk station and filling station blenders, encouraged by a wide spread, immediately buy natural in quantity to blend with unfinished motor fuel and refinery naphtha, to seek a direct route to market. Such diversion of natural away from the refinery blender to the jobber and cut-rate filling station owner, or in the hands of more or less irresponsible natural manufacturers, serves always to depress the motor fuel market. Parenthetically, since the price of natural gasoline is so instantly responsive to the factors which will eventually affect the price of motor fuel, it may be taken as a fact that whenever natural is in distress, the motor fuel market is also unfavorably affected, not simply because natural serves to depress the motor fuel market, but because the price of natural is sensitive to market demand, and is the most accurate index of the condition of the motor fuel market. However, it must not be overlooked that because natural can seek direct competitive routes to market, it can therefore serve to aggravate motor fuel market conditions by instantly becoming competitive with motor fuel whenever prices are unfavorable.

*Read before meeting of Western Petroleum Refiners Association, Excelsior Springs, Mo., April 6.

Storage Program

These factors being accepted as accurate and conceded to be undesirable in their effect on the structure of motor fuel prices, it is desirable to consider measures which may be used to offset the unfavorable conditions outlined. A number of suggestions have been made by refiners, by marketers, and by natural gasoline manufacturers. One of the first and most usual is that natural gasoline manufacturers should store their product at source. This suggestion can be dismissed as impractical, because a large storage campaign on the part of manufacturers would defeat the very purpose for which intended, by placing a much greater supply available on the market, particularly the unethical jobber market, and by its tendency to depress the market for long periods. A second suggestion which has been current and has been many times discussed is that the natural manufacturer should limit production by heavy stabilization during periods of low price structure and surplus of supply. Again this defeats the purpose in which we are interested by placing such heavily stabilized gasoline immediately available for use as motor fuel by the agency which destroys the soundness of the motor fuel market. An index of how accurate this statement is can be seen in the present 3½-cent price for 11-pound natural, as against the 1½-cent price for 26-70 gasoline. An interesting sidelight is that if natural is not going to motor fuel market the prices of low vapor pressure and 26-pound gasoline remain nearly the same during low-priced markets. If, on the contrary, as at present, prices show wide variance between low and high vapor pressure grades, this is a certain indication that blenders and jobbers are buying 11-pound to 14-pound gasoline in large quantities.

A third suggestion has been made that the production of natural gasoline should be prorated at the source, as is done in the case of crude oil. With no intention to criticise the proration program, it must be conceded that it has not been highly successful in the case of crude oil; whatever success it has achieved in crude oil has been immediately effected in natural gasoline supply because natural gasoline is manufactured from the gas production incident to prorated crude oil production. Such proration of natural gasoline at source is further impractical as requiring the revision of the entire contract structure under which all natural gasoline is manufactured, which revision, to say the least, would be in the direction of poor conservation of natural resources.

Yearly Contract

A fourth suggestion has been proposed that refiners individually contract their requirements of natural over the year, basing price on a differential below motor fuel market instead of on the spot market. The price differential at which such contracts are based should be such that (1) the refiner can always handle his full commitment of natural without sustaining a direct monetary loss, (2) that the price differential shall not be so great as to encourage the jobber-blender in the use of natural. In this category it must be remembered that the direct jobber-blender pays only one freight charge, whereas the refiner-blender pays a freight charge from plant to refinery and again from refinery to distributor. The jobber comes into the market for natural when the combined price to the jobber for third-grade motor fuel and natural gasoline permits him to profitably convert this blend into middle octane gasoline, or again he comes into the market for natural when directly stabilized 11-pound gasoline is sufficiently low priced to profitably sell in the middle octane group. (3) The contract price would be a sliding scale price permitting the refiner to order for various seasonal requirements whatever vapor pressure is needed to assure his proper volatility specifications. This procedure offers some advantage to the refiner who uses natural regularly. It gives him control of vapor pressure or volatility of his finished motor fuel. It fixes the price at a figure where he need never take a direct money loss on gallonage used. In the broad view it would help to maintain the general price structure by increasing through stabilization to low vapor pressure the supply available to market. The objections to long-time extracting of plant output are mostly apparent from the user's viewpoint and are, first, the burden of storing gasoline if necessary would fall on the refiner-blender; second, during some seasons the buyer would pay higher than spot market price. The favorable view is that if universally adopted it would work perfectly to stabilize the natural market, but the practical view is that unless universally adopted the probable effect would simply be to decrease the spot market supply of gasoline and make the market fluctuations wider. In this event even fewer cars of natural daily would control the market.

Natural Important Part

The broad view of the whole subject is that natural does constitute a part of the available motor fuel supply, but in reality has not been so considered, for instance, in the present methods of allocating crude to motor fuel requirements. It is impractical to further control the output of natural at its source other than such control as is exercised by the economic control which may result from the control of vapor pressures.

Therefore the conclusion seems fairly obvious that eventual control of total motor fuel output by control of crude output is inescapable. Roughly, there is manufactured a million barrels a day of

(Continued on Page 44)

Converting Foreign Measurements Into U. S. Equivalents

In foreign trade and statistical studies it often becomes necessary to convert foreign measurements of petroleum products into their equivalent based on the measures commonly used in the United States. An absolutely accurate conversion, of course, requires that the actual specific gravity of the liquid products be known and the conversion determined on that basis.

For ordinary use, however, it has been found satisfactory to use comparative figures which have been found to cover average conditions. The Bureau of Foreign and Domestic Commerce, Department of Commerce, in its monthly statistical bulletin "International Petroleum Trade" uses the following conversion factors for converting liquid petroleum products from metric tons to American barrels of 42 gallons each:

Crude oil	7.00
Gasoline	8.50
Kerosene	7.75
Lubricating oils	7.00
Fuel oil	6.66
Gas oil	7.25
Gas and Fuel oil	6.96
Naphtha (except where used to designate crude)	8.50
Turpentine substitute	6.96
Paraffin oil	6.98
Petroleum oil	7.36
Solar oil	7.29
Road oil	6.50
Mineral oil n.o.p.	7.00

With these conversion factors as a basis it is possible to convert other foreign measurements using 2,204.6 pounds to the metric ton. When the product is shown in imperial gallons it is possible to convert into American barrels by using 35 gallons to the barrel. When the product is shown in cubic meters as in Mexico and Russia the conversion factor used is 6.29 barrels to the cubic meter. The American gallon contains 231 cubic inches and the imperial gallon 277.274 cubic inches. The usual comparison for trade purposes is to consider the imperial gallon one-fifth larger than the American gallon.

Summary of Operations in All Fields for March, 1934

WELLS COMPLETED

	Comp.	Prod.	Dry	Gas
Eastern	162	845	9	21
Central Ohio	44	284	11	21
Lima	4	160	1	0
Indiana	9	40	5	1
Michigan	38	12,745	11	4
Kentucky	17	634	7	0
Illinois	2	15	1	0
Kansas	69	31,583	14	1
Oklahoma	180	79,831	45	11
North Central Texas	140	10,312	45	0
E. Cen. and E. Texas	252	15,412	7	2
East Tex. gas area	2	...	1	1
West Texas	29	164,671	9	0
Texas Panhandle	15	5,744	1	3
Southwest Texas	94	20,846	37	4
Gulf Coast Texas	111	56,827	30	4
Gulf Coast Louisiana	23	6,697	12	0
North Louisiana	39	3,091	19	2
Arkansas	3	50	2	0
Mississippi	1	...	1	0
Montana	9	832	1	0
Wyoming	3	140	0	1
Colorado	1	...	1	0
New Mexico	6	3,180	0	2
Total March	1,253	413,939	270	78
Total February	1,162	225,137	279	94
Difference	91	188,802	9	16

RIGS AND WELLS DRILLING

	Rigs	Drlg.	Ttl.
Eastern	72	165	237
Central Ohio	27	109	136
Lima	4	26	30
Indiana	0	32	32
Michigan	92	142	234
Kentucky	0	53	53
Illinois	2	11	13
Kansas	35	134	169
Oklahoma	111	421	532
North Central Texas	70	237	307
East Cent. and E. Texas	86	310	396
East Texas gas area	4	13	17
West Texas	45	132	177
Panhandle Texas	32	82	114
Southwest Texas	31	124	155
Gulf Coast Texas	42	158	200
Gulf Coast Louisiana	8	78	86
North Louisiana	61	83	144
Arkansas	9	30	39
Mississippi	7	15	22
Alabama	1	1	2
Montana	9	47	56
Wyoming	12	65	77
Colorado	1	45	46
Utah	1	14	15
New Mexico	10	58	68
Total March	772	2,585	3,357
Total February	706	2,497	3,203
Difference	66	88	154

Oklahoma Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Beckham	2	0	2	0
Creek	25	1,051	5	1
Carter	5	491	2	1
Garvin	1	0	1	0
Hughes	15	941	2	2
Jefferson	1	40	0	0
Lincoln	14	24,094	2	0
Logan	7	17,520	1	0
Marshall	5	115	0	0
Murray	1	0	1	0
Noble	3	5,398	1	0
Okmulgee	10	172	5	1
Okfuskee	2	15	0	1
Osage	32	18,816	6	0
Oklahoma	2	3,040	0	0
Pittsburg	2	0	0	2
Pontotoc	12	1,225	3	1
Pottawatomie	11	3,863	4	0
Seminole	9	1,579	3	0
Stephens	7	1,065	2	1
Tulsa	4	34	2	0
Wagoner	10	372	3	1
Total March	180	79,831	45	11
Total February	115	19,725	27	8
Difference	65	60,106	18	3

Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Alfalfa	0	1	1
Atoka	0	8	8
Beckham	0	2	2
Blaine	0	1	1
Bryan	1	0	1
Caddo	2	3	5
Carter	7	13	20
Cleveland	1	0	1
Comanche	0	8	8
Cotton	0	1	1
Choctaw	0	1	1
Creek	14	59	73
Dewey	0	1	1
Ellis	0	1	1
Garvin	1	5	6
Greer	0	1	1
Garfield	0	2	2
Hughes	2	16	18
Jefferson	1	3	4
Kay	1	1	2
Kingfisher	0	1	1
Kiowa	0	2	2
Lincoln	2	11	13
Logan	2	7	9
Muskogee	1	6	7
Marshall	1	6	7
Murray	0	1	1
Noble	2	18	20
Okmulgee	8	31	39
Oklahoma	9	30	39
Okfuskee	3	9	12
Osage	22	60	82
Pottawatomie	10	32	42
Pontotoc	10	12	22
Pittsburg	3	5	8
Pushmataha	0	1	1
Payne	0	2	2
Pawnee	3	10	13
Seminole	1	24	25
Stephens	2	10	12
Tillman	0	1	1
Tulsa	2	13	15
Washitia	0	2	2
Total March	111	421	532
Total February	117	371	488
Difference	6	50	44

Kansas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Barton	2	6	1	0
Butler	2	15	1	0
Cowley	4	243	1	1
Elk	1	60	0	0
Ellis	1	222	0	0
Greenwood	4	607	2	0
Harvey	15	10,401	1	0
Kingman	1	1,185	0	0
McPherson	13	5,920	2	0
Reno	4	2,673	1	0
Rice	10	3,073	2	0
Russell	4	1,719	0	0
Sedgwick	6	434	2	0
Woodson	2	25	1	0
Total March	69	31,583	14	1
Total February	50	22,299	11	2
Difference	19	9,284	3	1

Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Barton	0	1	1
Butler	4	10	14
Dickinson	0	1	1
Ellis	1	3	4
Ellsworth	0	1	1
Finney	0	1	1
Greenwood	1	7	8
Harvey	1	14	15
Kingman	1	4	5
McPherson	10	38	48
Phillips	0	1	1
Reno	2	13	15
Rice	7	22	29
Rush	0	2	2
Rooks	0	3	3
Russell	5	4	9
Sedgwick	3	4	7
Stafford	0	3	3
Sumner	0	1	1
Trego	0	1	1
Total March	35	134	169
Total February	39	125	164
Difference	4	9	5

East Central Texas Fields

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas
Anderson	2	726	0	0
Cherokee	1	60	0	0
Gregg	108	7,101	0	0
Henderson	1	0	1	0
Leon	1	0	0	1
Limestone	1	0	1	0
Morris	1	0	1	0
Navarro	1	0	1	0
Rusk	94	5,611	0	1
Smith	24	1,124	0	0
Upshur	16	710	2	0
Van Zandt	2	80	1	0
Total March	252	15,412	7	2
Total Feb.	251	15,387	11	1
Difference	1	25	4	1

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Anderson	2	0	2	4
Angelina	0	1	0	1
Bowie	1	0	0	1
Cherokee	3	0	1	4
Ellis	0	1	0	1
Fannin	0	0	1	1
Franklin	0	1	0	1
Freestone	0	1	1	2
Gregg	30	13	107	150
Henderson	4	0	0	4
Hunt	0	1	1	2
Kaufman	1	1	0	2
Lamar	0	1	0	1
Leon	2	0	1	3
Limestone	0	1	1	2
Morris	0	1	0	1
Nacogdoches	0	1	0	1
Navarro	2	0	0	2
Rains	0	0	1	1
Rusk	26	10	123	159
Smith	4	5	10	19
Titus	0	1	0	1
Upshur	6	3	10	19
Van Zandt	4	6	2	12
Wood	1	1	0	2
Total March	86	49	261	396
Total February	77	44	260	381
Difference	9	5	1	15

West Texas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Ector	2	73	1	0
Gaines	1	0	1	0
Glasscock	4	1,826	1	0
Howard	3	313	0	0
Hudspeth	1	0	1	0
Loving	1	70	0	0
Pecos	7	160,097	0	0
Tom Green	1	0	1	0
Ward	7	1,708	4	0
Winkler	2	584	0	0
Total March	29	164,671	9	0
Total February	34	77,971	7	0
Difference	5	86,700	2	0

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Andrews	1	0	3	4
Brewster	0	0	1	1
Coke	0	1	0	1
Crane	0	0	3	3
Crockett	0	1	1	2
Culberson	0	1	0	1
Dawson	0	1	0	1
Ector	6	2	11	19
Fisher	3	2	10	15
Glasscock	2	1	4	7
Howard	3	3	7	13
Irion	1	1	1	3
Jones	4	2	4	10
Loving	3	1	6	10
Pecos	7	4	8	19
Reagan	0	0	1	1
Reeves	1	1	0	2
Runnels	5	1	6	12
Schleicher	0	1	0	1
Scurry	0	4	0	4
Terrell	0	1	0	1
Upton	0	1	4	5
Val Verde	1	0	0	1
Ward	4	6	15	25
Winkler	4	3	9	16
Total March	45	38	94	177
Total February	43	43	77	163
Difference	2	5	17	14

Panhandle Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Carson	1	53	0	0
Gray	6	4,855	0	0
Hutchinson	5	509	0	3
Moore	1	0	1	0
Wheeler	2	327	0	0
Total March	15	5,744	1	3
Total February	43	10,607	1	8
Difference	28	4,863	0	5

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Carson	4	1	2	7
Childress	1	1	1	3
Gray	15	6	33	54
Hemphill	0	1	0	1
Hutchinson	5	3	12	20
Moore	1	0	1	2
Roberts	0	1	0	1
Wheeler	6	3	11	20
Miscellaneous	0	5	1	6
Total March	32	21	61	114
Total February	19	15	65	99
Difference	13	6	4	15

Southwest Texas Fields

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Drg.	Ttl.
Agua Dulce	0	0	0	0	0	1	1
Byersville	1	25	0	0	0	1	1
Cedar Creek	2	550	0	0	1	0	1
Cuevitas	1	0	0	1	0	2	2
East Cole	1	0	0	1	0	1	1
West Cole	4	110	2	0	0	0	0
North Dale	2	680	0	0	1	4	5
Govt. Wells	37	19,100	0	0	6	13	19
Eckert	0	0	0	0	0	3	3
Eagle Hill	3	130	1	0	1	1	2
Escobas	3	86	0	1	0	1	1
Laurel	0	0	0	0	0	1	1
Kingsville	0	0	0	0	1	0	1
Sarnosa	1	5	0	0	0	0	0
Saxet	0	0	0	0	0	2	2
Jacob	0	0	0	0	1	4	5
Marando Val.	2	0	2	0	0	0	0
Martinez	0	0	0	0	0	1	1
Moca	1	45	0	0	0	0	0
Miscellaneous	35	115	32	1	20	89	109
Total Mar.	94	20,846	37	4	31	124	155
Total Feb.	87	11,111	39	8	29	107	136
Difference	7	9,735	2	4	2	17	19

North Central Texas Fields

Summary of Wells Completed

County—	Comp.	Prod.	Abd.	Gas
Archer	70	8,049	16	0
Brown	4	0	4	0
Callahan	2	60	1	0
Clay	1	15	0	0
Cooke	1	0	1	0
Jack	3	178	1	0
Montague	3	50	2	0
Palo Pinto	1	0	1	0
Shackelford	13	385	3	0
Wichita	1	0	1	0
Wilbarger	1	110	0	0
Wise	1	0	1	0
Young	39	1,465	14	0
Total March	140	10,312	45	0
Total February	149	10,553	66	6
Difference	9	241	21	6

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Archer	20	8	75	103
Baylor	1	2	3	6
Brown	2	2	3	7
Callahan	4	3	4	11
Clay	2	1	2	5
Coleman	2	1	3	6
Eastland	3	2	5	10
Erath	0	1	0	1
Foard	1	3	3	7
Grayson	1	2	2	5
Jack	3	2	5	10
Johnson	0	3	0	3
Montague	0	2	3	5
Palo Pinto	3	2	5	10
Parker	1	2	0	3
Shackelford	5	2	10	17
Stephens	1	3	5	9
Taylor	0	1	2	3
Throckmorton	2	1	2	5
Wichita	3	2	4	9
Wilbarger	1	3	5	9
Wise	0	0	1	1
Young	15	7	40	62
Total Mar.	70	55	182	307
Total February	44	50	160	254
Difference	26	5	22	53

Gulf Coast Fields

TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Drg.	Ttl.
Arriola	0	0	0	0	1	1	2
Barbers Hill	4	974	1	0	1	18	19
Batson	0	0	0	0	0	1	1
Big Creek	1	80	0	0	0	2	2
Buckeye	0	0	0	0	0	2	2
Clay Creek	1	168	0	0	1	1	2
Cleveland	2	0	0	0	0	1	1
Coleto Creek	0	0	0	0	0	1	1
Conroe	30	37,036	4	1	0	12	12
Damon Mound	0	0	0	0	0	1	1
Esperson	1	720	0	0	0	2	2
Garwood	1	0	1	0	0	0	0
Goose Creek	3	775	0	0	2	4	6
Greta	12	1,844	3	0	5	16	21
Hankamer	1	200	0	0	0	0	0
High Island	0	0	0	0	1	5	6
Hockley	1	0	1	0	0	0	0
Hull	13	8,148	1	0	3	11	14
Humble	0	0	0	0	0	1	1
Keeran	1	700	0	0	0	0	0
Liberty	1	0	1	0	2	2	4
Livingston	4	984	1	0	1	3	4
Louise	2	112	1	0	0	2	2
Manvell	2	480	0	1	2	5	7
McFaddin district	0	0	0	0	0	2	2
Mykawa	1	1,440	0	0	0	2	2
O'Connor	1	80	0	0	0	1	1
Orchard	1	0	1	0	1	0	1
Pierce Junction	0	0	0	0	0	2	2
Pledger	2	0	1	1	1	2	3
Port Neches	0	0	0	0	0	2	2
Saratoga	1	150	0	0	0	3	3
Sour Lake	0	0	0	0	0	1	1
Stratton Ridge	0	0	0	0	0	1	1
Sugarland	0	0	0	0	0	1	1
Thompson	2	200	1	0	1	1	2
Tomball	10	2,756	1	0	6	7	13
West Columbia	1	0	1	0	0	1	1
Miscellaneous	12	0	11	1	14	41	55
Ttl. Mar.	111	56,827	30	4	42	158	200
Ttl. Feb.	87	34,744	34	6	38	179	217
Difference	24	22,083	4	2	4	21	17

LOUISIANA COAST

Summary of Field Operations

Field—	Comp.	Prod.	Abd.	Gas	Rigs	Drg.	Ttl.
Black Bayou	0	0	0	0	0	1	1
Cameron Meadows	3	944	0	0	1	2	3
Choctaw	0	0	0	0	0	1	1
Darrow	0	0	0	0	0	1	1
Edgerly	0	0	0	0	0	3	3
Gueydan	1	0	1	0	0	1	1
Hackberry	0	0	0	0	1	10	11
Iowa	3	3,690	0	0	0	6	6
Jennings	0	0	0	0	0	1	1
Lake Barre	2	0	2	0	1	3	4
Lake Pelto	1	0	1	0	0	0	0
Leesville	2	758	1	0	0	5	5
Lockport	1	0	1	0	0	5	5
Roanoke	0	0	0	0	0	2	2
Port Barre	1	50	0	0	0	2	2
Sorrento	0	0	0	0	1	2	3
Starks	1	0	1	0	0	2	2
Sulphur	1	1,093	0	0	0	6	6
Sweet Lake	0	0	0	0	0	1	1
Vinton	2	162	0	0	2	8	10
White Castle	0	0	0	0	0	1	1
Miscellaneous	5	0	5	0	2	15	17
Ttl. Mar.	23	6,697	12	0	8	78	86
Ttl. Feb.	18	4,228	12	0	18	81	99
Difference	5	2,469	0	0	10	3	13

Ttl. Gulf Coast:

Ttl. Mar.	134	63,524	42	4	50	236	286
Ttl. Feb.	105	38,972	46	6	56	259	316
Difference	29	24,552	4	2	6	23	30

Louisiana Fields

Summary of Field Operations

	Comp.	Prod.	Dry Gas*	Rigs	Drlg.	Ttl.
Avoyelles	0	0	0	0	1	1
Bienville	0	0	0	0	1	1
Bossier	2	0	2	0	6	5
Caddo	2	6	0	1	2	10
Caldwell	0	0	0	0	0	2
Catahoula	0	0	0	0	1	0
Claiborne	0	0	0	0	1	0
Concordia	0	0	0	0	0	1
De Soto	3	0	2	1	2	11
East Carroll	0	0	0	0	1	0
Franklin	0	0	0	0	1	0
Grant	0	0	0	0	0	2
Lincoln	0	0	0	0	1	0
Morehouse	0	0	0	0	0	2
Natchitoches	0	0	0	0	1	3

"INSIST ON A SIX FOR HAULING GAS AND OIL AT LOW COST!"

. . . and the 1934 Chevrolet truck is the lowest-priced six!

CHEVROLET

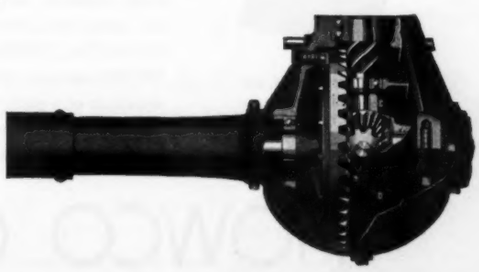
You can save money on every delivery when your truck is a *Six*—a *valve-in-head* six! With more than six cylinders, you face the prospect of higher costs for gas, oil and maintenance. With less than six, excessive vibration runs up costs from added wear and tear. *Six* is the right number of cylinders, and the lowest-priced six-cylinder truck is the 1934 Chevrolet. Chevrolet has developed the six-cylinder principle to its most economical point, and gives it to you in a big, husky, high-powered truck—*not a made-over passenger car, but all truck throughout.* Truck frame, truck brakes, truck springs, axles, gears and clutch—and a truck engine that delivers maximum pulling power at normal speeds. This truck has strength and power to handle big loads without difficulty—and it saves money on any run, empty or loaded. It has the lowest final gear ratio (transmission and rear axle combined) of any 1½-ton truck, which means easy starting with heavy loads. You can handle all your gas, oil, and fuel oil deliveries with overhead valve *six-cylinder* Chevrolet trucks—as many of the most successful refiners and distributors are already doing—and you will find that your delivery service improves as the hauling costs drop.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

Compare Chevrolet's low delivered prices and easy G. M. A. C. terms.
A General Motors Value

HEAVY-DUTY REAR AXLE

Big axle shafts, straddle-mounted pinion gear, 4-pinion differential, double-row wheel bearings, one-piece banjo-type housing—all these and many more special features give Chevrolet rear axles an extra reserve strength that is rarely needed in tank-truck service.



CHEVROLET
SIX-CYLINDER
TRUCKS

Provides that extra measure of Safety

THE FAR SIGHTED OPERATOR DESIRES

For further details, see Halliburton section in the 1934 Composite Catalog.

It is not absolutely necessary to carry insurance; but because all men are subject to certain hazards, many consider it wise to protect themselves against such contingencies as fire, theft, sickness, accident, etc. ● In the same way, because HOWCO CO-AXIAL SPIRAL, provides an EXTRA measure of safety—ADDED assurance of a perfect job—many far-sighted operators consider it decidedly worth while "insurance." ●HOWCO CO-AXIAL SPIRAL consists of a triangular rubber moulding, vulcanized to a metal base, and secured to casing by arc welding at short intervals. By assuring that there is no direct contact between casing and the wall of the hole at critical points in the hole, and by guiding the cement around the casing at those points, it gives additional assurance of a successful and permanent water shut-off. . . . . Details on request.

HOWCO CO-AXIAL SPIRAL

HALLIBURTON OIL WELL CEMENTING CO.

DUNCAN, OKLAHOMA

Ouachita	1	0	1	0	2	2	4
Rapides	0	0	0	0	4	3	7
Red River	1	0	1	0	3	1	4
Richland	0	0	0	0	1	1	2
Sabine	29	3,085	12	0	33	36	69
Union	0	0	0	0	0	1	1
Vernon	0	0	0	0	1	0	1
Webster	1	0	1	0	0	1	1
Total Mar.	39	3,091	19	2	61	83	144
Total Feb.	34	1,531	13	4	58	101	159
Difference	5	1,560	6	2	3	18	15

*Gas production: Caddo, 3,000,000 feet; De Soto, 6,000,000 feet; total, 9,000,000 ft.

Arkansas Fields

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Arkansas	0	0	0	0	0	1	1
Ashley	0	0	0	0	0	1	1
Columbia	0	0	0	0	0	1	1
Conway	0	0	0	0	0	1	1
Hempstead	0	0	0	0	1	1	2
Jefferson	1	0	1	0	1	1	2
Lafayette	0	0	0	0	0	2	2
Little River	0	0	0	0	0	2	2
Lonoke	0	0	0	0	0	1	1
Miller	0	0	0	0	3	7	10
Nevada	0	0	0	0	1	1	2
Ouachita	0	0	0	0	0	3	3
Poinsett	0	0	0	0	0	1	1
St. Francis	0	0	0	0	1	0	1
Union	1	50	0	0	2	6	8
Woodruff	1	0	1	0	0	0	0
Yell	0	0	0	0	0	1	1
Total Mar.	3	50	2	0	9	30	39
Total Feb.	6	735	2	0	9	34	43
Difference	3	735	0	0	0	4	4

East Texas Border Counties

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rigs	Dlg.	Ttl.
Cass	1	0	1	0	2	0	2
Harrison	0	0	0	0	0	2	2
Marion	0	0	0	0	0	2	2
Panola	1	0	0	1	1	6	7
Shelby	0	0	0	0	1	3	4
Total Mar.	2	0	1	1	4	13	17
Total Feb.	1	0	1	0	2	9	11
Difference	1	0	0	1	2	4	6

*Gas production: Panola, 250,000 feet.

Alabama Fields

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Baldwin	0	0	0	0	0	1	1
Lamar	0	0	0	0	0	1	1
Total Mar.	0	0	0	0	0	2	2
Total Feb.	0	0	0	0	0	2	2
Difference	0	0	0	0	0	0	0

Mississippi Fields

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Franklin	0	0	0	0	1	0	1
Greene	0	0	0	0	0	1	1
Hinds	0	0	0	0	2	3	5
Lamar	0	0	0	0	1	0	1
Madison	0	0	0	0	0	1	1
Marion	0	0	0	0	1	0	1
Newton	1	0	1	0	0	0	0
Pike	0	0	0	0	0	1	1
Rankin	0	0	0	0	1	5	6
Scott	0	0	0	0	0	1	1
Simpson	0	0	0	0	0	1	1
Walthall	0	0	0	0	1	0	1
Warren	0	0	0	0	0	1	1
Wilkinson	0	0	0	0	0	1	1
Total Mar.	1	0	1	0	7	15	22
Total Feb.	3	0	3	0	5	14	19
Difference	2	0	2	0	2	1	3

Rocky Mountain Area

UTAH

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Total March	0	0	0	0	1	14	15
Total Feb.	0	0	0	0	1	14	15
Difference	0	0	0	0	0	0	0

MONTANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Carbon	0	0	0	0	1	5	6
Fergus	0	0	0	0	0	3	3
Glacier	8	832	0	0	6	17	23
Hill	1	0	1	0	0	1	1
Liberty	0	0	0	0	0	3	3
Petroleum	0	0	0	0	0	3	3
Teton	0	0	0	0	0	3	3
Toole	0	0	0	0	0	6	6
Miscellaneous	0	0	0	0	2	6	8
Total Mar.	9	832	1	0	9	47	56
Total Feb.	5	321	0	0	7	48	55
Difference	4	511	1	0	2	1	1

WYOMING

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Big Horn	0	0	0	0	1	6	7
Carbon	0	0	0	0	1	5	6
Converse	1	0	0	1	0	5	5
Crook	0	0	0	0	0	7	7
Fremont	0	0	0	0	1	3	4
Hot Springs	1	100	0	0	0	3	3
Natrona	0	0	0	0	3	7	10
Niobrara	0	0	0	0	0	2	2
Park	0	0	0	0	0	3	3
Sweetwater	0	0	0	0	1	3	4
Sublet	0	0	0	0	0	4	4
Uinta	0	0	0	0	0	6	6
Washakie	0	0	0	0	2	2	4
Weston	1	40	0	0	3	2	5
Miscellaneous	0	0	0	0	0	7	7
Total Mar.	3	140	0	1	12	65	77
Total Feb.	0	0	0	0	13	61	74
Difference	3	140	0	1	1	4	3

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Eddy	2	0	0	2	1	9	10
Lea	4	3,180	0	0	6	8	14
McKinley	0	0	0	0	2	5	7
San Juan	0	0	0	0	0	16	16
San Miguel	0	0	0	0	0	4	4
Santa Fe	0	0	0	0	0	3	3
Valencia	0	0	0	0	0	3	3
Miscellaneous	0	0	0	0	1	10	11
Total Mar.	6	3,180	0	2	10	58	68
Total Feb.	5	10	1	3	3	62	65
Difference	1	3,170	1	1	7	4	3

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Boulder	1	0	1	0	0	3	3
Elbert	0	0	0	0	0	3	3
Jackson	0	0	0	0	0	5	5
Larimer	0	0	0	0	0	5	5
Las Animas	0	0	0	0	0	2	2
Moffat	0	0	0	0	0	2	2
Morgan	0	0	0	0	1	1	2
Weld	0	0	0	0	0	3	3
Miscellaneous	0	0	0	0	0	21	21
Total Mar.	1	0	1	0	1	45	46
Total Feb.	3	4,660	0	1	3	47	50
Difference	2	4,660	1	1	2	2	4

Kentucky Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ohio	7	33	4	0	0	19	19
Daviess	0	0	0	0	0	16	16
Hancock	6	196	3	0	0	2	2
McLean	4	405	0	0	0	6	6
Muhlenburg	0	0	0	0	0	3	3
Bath	0	0	0	0	0	1	1
Lee	0	0	0	0	0	1	1
Knox	0	0	0	0	0	1	1
Edmonson	0	0	0	0	0	1	1
Grayson	0	0	0	0	0	1	1
Allen	0	0	0	0	0	2	2
Ttl. Mar.	17	634	7	0	0	53	53
Ttl. Feb.	12	93	5	0	2	53	55
Difference	5	541	2	0	2	0	2

Eastern Fields

Summary of Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Bradford	98	189	0	0
Allegany	6	6	0	0
Venango-Clarion	5	2	0	1
Butler-Armstrong	2	3	0	0
Southwest Pennsylvania	8	48	2	3
Southeast Ohio	18	316	5	4
West Virginia	25	281	2	13
Total March	162	845	9	21
Total February	162	699	13	23
Difference	0	146	4	2

Rigs and Wells Drilling

Field—	Rigs	Drlg.	Ttl.
Bradford	19	79	98
Allegany	3	1	4
Venango-Clarion	2	3	5
Butler-Armstrong	5	1	6
Southwest Pennsylvania	6	11	17
Southeast Ohio	14	20	34
West Virginia	23	50	73
Total March	72	165	237
Total February	65	182	247
Difference	7	17	10

Lima Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	0	0	0	0	0	2	2
Hancock	0	0	0	0	0	1	1
Allen	0	0	0	0	0	1	1
Auglaize	0	0	0	0	0	2	2
Van Wert	0	0	0	0	1	3	4
Mercer	0	0	0	0	0	1	1
Sandusky	0	0	0	0	0	4	4
Ottawa	0	0	0	0	0	1	1
Seneca	0	0	0	0	0	4	4
Lucas	0	0	0	0	0	1	1
Wyandot	4	160	1	0	3	5	8
Williams	0	0	0	0	0	1	1
Ttl. Mar.	4	160	1	0	4	26	30
Ttl. Feb.	12	125	6	2	4	25	29
Difference	8	35	5	2	0	1	1

Central Ohio Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	0	0	0	0	2	1	3
Huron	1	0	0	1	0	0	0
Cuyahoga	1	0	1	0	0	0	0
Medina	7	75	0	0	1	1	2
Lorain	3	0	2	1	2	4	6
Holmes	0	0	0	0	0	3	3
Richland	0	0	0	0	0	1	1
Wayne	0	0	0	0	2	2	4
Summitt	2	0	1	1	0	1	1
Fairfield	2	0	0	2	2	1	3
Knox	4	92	1	2	1	2	3
Coshocton	2	65	1	0	4	3	7
Licking	5	52	2	0	1	4	5
Muskingum	1	0	0	1	0	9	9
Athens	0	0	0	0	2	11	13
Tuscarawas	2	0	1	1	1	2	3

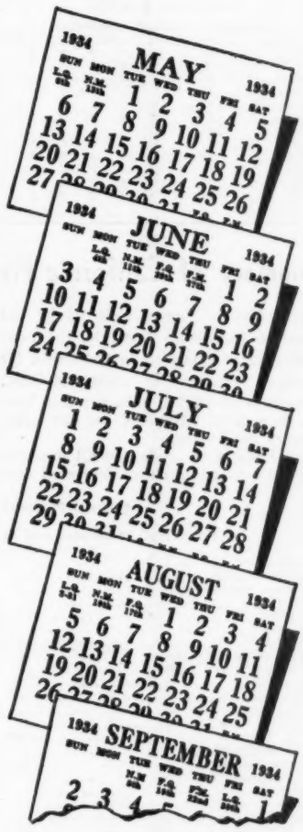
is the Time to Install Vent Units

. . . they'll bring Big Returns in the days soon to come

NOW is the time to plan on limiting your evaporation losses in the hot summer days ahead.

The Oceco Vent Valve effects large savings. It has been found that these savings in a comparatively short time pay for the vent and return a good profit annually thereafter. Thousands of Oceco Vents are in use. Present connections on old tanks are usually adaptable to attaching Oceco fittings.

Your liquid assets are worth protecting. The sooner you do it, the more you save.



This is the Oceco Vent Unit consisting of breather valve and flame arrestor.

THE OIL CONSERVATION ENGINEERING COMPANY
877 Addison Rd., Cleveland, Ohio

Engineering and Sales Service:
90 West St., New York.
Box 552, Beaumont, Texas
Box 1387, Tulsa, Okla.
Dravo-Doyle Co., Marquette Bldg., Chicago, Ill.

OCECO FITTINGS

Stark	7	0	1	6	3	25	28
Belmont	2	0	1	1	0	5	5
Guernsey	1	0	0	1	3	12	15
Crawford	0	0	0	0	0	1	1
Gallia	0	0	0	0	0	3	3
Scioto	0	0	0	0	0	1	1
Pike	0	0	0	0	0	2	2
Carroll	0	0	0	0	0	3	3
Vinton	1	0	0	1	1	2	3
Lawrence	1	0	0	1	1	4	5
Geauga	0	0	0	0	0	1	1
Meigs	2	0	0	2	1	5	6
Ttl. Mar.	44	284	11	21	27	109	136
Ttl. Feb.	35	379	9	15	18	102	120
Difference	9	95	2	6	9	7	16

Illinois Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	0	0	0	0	0	2	2
Crawford	0	0	0	0	1	1	2
Marion	0	0	0	0	0	1	1
Boone	0	0	0	0	1	0	1
Jefferson	0	0	0	0	0	1	1
Clinton	0	0	0	0	0	1	1
Bond	0	0	0	0	0	2	2
Madison	0	0	0	0	0	1	1
Macoupin	0	0	0	0	0	1	1
Jasper	0	0	0	0	0	1	1
Fayette	1	0	1	0	0	0	0
Wabash	1	15	0	0	0	0	0
Ttl. Mar.	2	15	1	0	2	11	13
Ttl. Feb.	0	0	0	0	1	11	12
Difference	2	15	1	0	1	0	1

Indiana Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Gibson	1	10	0	0	0	2	2
Pike	1	0	0	1	0	3	3
Sullivan	0	0	0	0	0	3	3
Daviess	0	0	0	0	0	2	2
Randolph	0	0	0	0	0	1	1
Warrick	0	0	0	0	0	2	2
Spencer	0	0	0	0	0	2	2
Greene	0	0	0	0	0	1	1
St. Joe	0	0	0	0	0	1	1
Harrison	0	0	0	0	0	1	1
Porter	0	0	0	0	0	1	1
Stark	0	0	0	0	0	1	1
Henry	0	0	0	0	0	1	1
Knox	2	0	2	0	0	0	0
Martin	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Hancock	0	0	0	0	0	1	1
Lawrence	0	0	0	0	0	1	1
Perry	0	0	0	0	0	1	1
Vanderburg	5	30	3	0	0	6	6
Ttl. Mar.	9	40	5	1	0	32	32
Ttl. Feb.	20	114	10	2	1	31	32
Difference	11	74	5	1	1	1	0

Michigan Fields

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Midland	15	10,905	1	0	23	57	80
Isabella	9	1,470	1	3	22	22	44
Clare	0	0	0	0	4	1	5
Oceana	1	125	0	0	4	16	20
Lake	0	0	0	0	0	2	2
Iosco	0	0	0	0	1	0	1
Gratiot	2	0	2	0	2	1	3
Cass	0	0	0	0	3	1	4
Kent	0	0	0	0	1	2	3
Emmett	0	0	0	0	1	1	2
Montmorency	0	0	0	0	3	0	3
Sanilac	0	0	0	0	3	0	3
Saginaw	1	5	0	0	1	2	3
Newaygo	0	0	0	0	0	2	2
Shiawassee	0	0	0	0	1	3	4
Allegan	0	0	0	0	1	2	3
Livingston	0	0	0	0	1	2	3
Osceola	1	0	1	0	0	0	0
Alpena	1	0	0	1	1	0	1
Cheboygan	0	0	0	0	0	1	1
Oakland	0	0	0	0	0	1	1
Macomb	0	0	0	0	1	1	2
Gennessee	0	0	0	0	1	0	1
Mecosta	0	0	0	0	3	1	4
Monroe	0	0	0	0	0	1	1
St. Clair	1	0	1	0	2	0	2
Muskegon	0	0	0	0	6	6	12
Ogemaw	4	240	2	0	6	13	19
Gladwin	1	0	1	0	0	0	0
Arenac	2	0	2	0	0	0	0
Iona	0	0	0	0	0	1	1
Eaton	0	0	0	0	0	1	1
Montcalm	0	0	0	0	0	2	2
Lapeer	0	0	0	0	1	0	1
Ttl. Mar.	38	12,745	11	4	92	142	234
Ttl. Feb.	28	9,595	8	8	90	124	214
Difference	10	3,150	3	4	2	18	20

TOTAL STOCKS HELD BY CALIFORNIA OIL COMPANIES, BOTH INSIDE AND OUTSIDE THE UNITED STATES

	Feb. 28, 1934	Jan. 31, 1934	Feb. stock decreases	Feb. 28, 1933
Heavy crude and all grades of fuel, gas and Diesel oils	88,264,780	91,493,113	3,228,333	99,060,173
Refinable crude	35,140,019	35,670,849	530,830	39,867,508
Finished gasoline, engine distillate and natural gasoline	14,384,175	14,218,117	*166,058	15,538,326
Crude gasoline and naphtha distillates	6,127,484	5,271,664	*855,820	4,734,357
All other stocks	†7,318,287	‡7,280,321	*37,966	§6,704,675
Total all stocks	151,234,745	153,934,064	2,699,319	165,905,039
*Increase. Barrels of coke included	†627,797	‡626,599		§655,131

OIL FIELD DEVELOPMENT

	New rigs up	Active drilling	Producers completed	Daily init al output	Active producing	Abandoned wells: Drillers	Abandoned wells: Producers
Group No. 1—							
Belridge—North	1	2	...	.....	21	..	..
Belridge—South	..	1	...	.....	94	..	..
Coalinga	..	...	...	.....	852	..	..
Elk Hills	..	...	...	.....	202	..	..
Fruitvale	..	3	...	.....	66	..	..
Kern River	..	...	...	.....	1,189	..	1
Kettleman Middle Dome	..	1	...	.....	1	..	..
Ketleman North Dome	2	24	...	.....	51	..	..
Lost Hills	..	1	...	.....	233	..	..
McKittrick	..	...	...	.....	186	..	..
Midway-Sunset	..	2	1	595	2,228	..	6
Mountain View	4	17	...	.....	9	..	..
Mount Poso	2	4	3	985	122	..	..
Round Mountain	1	3	...	.....	35	..	..
Wheeler Ridge	..	...	...	.....	34	..	..
Group No. 2—							
Capitan	..	1	...	.....	7	..	..
Elwood	3	3	...	.....	51	..	1
Rincon	..	...	...	.....	33	..	..
San Miguelito	..	...	...	.....	3	1	..
Santa Barbara	..	2	1	1,760	17	..	..
Santa Maria	1	1	...	.....	170	..	..
Summerland	..	...	1	Gas	27	..	..
Ventura Avenue	..	10	...	.....	181	..	..
Ventura-Newhall	..	10	...	.....	460	..	..
Watsonville	..	...	...	.....	7	..	..
Group No. 3—							
Brea Olinda	..	...	...	.....	340	..	..
Coyote—East	..	1	1	50	68	..	..
Coyote—West	..	5	...	.....	27	..	..
Dominguez	3	6	1	640	60	..	..
Huntington Beach	..	2	5	4,687	502	..	..
Inglewood	..	1	...	.....	217	..	..
Lawndale	..	...	...	.....	7	..	..
Long Beach	4	31	8	1,701	1,033	2	..
Los Angeles-Salt Lake	..	...	...	.....	158	..	..
Montebello	4	7	...	.....	181	..	..
Newport	..	...	...	.....	.....	..	..
Playa Del Rey	2	1	...	.....	174	..	1
Potrero	..	...	...	.....	10	..	..
Richfield	..	1	...	.....	218	1	1
Rosecrans	..	...	...	.....	67	..	..
Santa Fe Springs	..	1	...	.....	542	..	3
Seal Beach	..	1	...	.....	131	..	..
Torrance	..	...	...	.....	455	..	..
Whittier	..	...	...	.....	153	..	..
Miscellaneous drilling	1	36	...	.....	.....	3	..
Group No. 4—							
Buttonwillow gas field	..	...	...	.....	.....	..	..
Dudley Ridge gas field	..	2	...	.....	.....	..	..
Goleta gas field	..	...	...	.....	2	..	..
Total February	28	180	21	10,418	10,624	7	13
Total January	59	161	30	43,957	10,605	23	23
Decrease	31	*19	9	33,539	*19	16	10
Average for year 1933	30	124	21	22,842	9,199	14	18
Average for year 1932	18	108	15	13,069	8,928	16	14
Average for year 1931	22	207	21	30,370	8,911	20	15

*Increase.

Summary of California Field Operations for February

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for February amounted to 12,593,784 bbls., an average of 449,778 bbls. per day. This is a decrease of 7,108 bbls. per day under January production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 2,699,319 bbls. The total stocks at the end of the month were 151,234,745 bbls. The total stock decrease for 1934, up to February 28, was 4,229,824 bbls.

Twenty-one wells were complete during the month with an initial daily production of 10,418 bbls., compared with 30 wells completed during January with an initial production of 43,957 bbls.

CRUDE PETROLEUM PRODUCTION

(Figures of Production and Stocks are in barrels of 42 gallons)

Group No. 1—	Barrels per month	Daily average Feb., 1934	Daily average Jan., 1934	Daily average Feb., 1933
Belridge—North	190,189	6,792	6,940	(*)
Belridge—South	52,664	1,881	1,461	(*)
Coalinga	420,171	15,006	15,862	10,596
Elk Hills	292,502	10,447	11,383	12,925
Fruitvale	97,711	3,490	4,011	5,037
Kern River	256,344	9,155	8,748	9,022
Kettleman Middle Dome	10,749	384	433	.....
Kettleman North Dome	1,382,795	49,386	51,095	57,526
Lost Hills	73,735	2,633	2,786	*9,347
McKittrick	81,959	2,927	2,614	1,741
Midway-Sunset	1,423,136	50,826	52,566	47,338
Mountain View	103,528	3,697	2,616	.....
Mount Poso	225,366	8,049	8,086	8,191
Round Mountain	144,489	5,160	5,021	2,907
Wheeler Ridge	12,271	438	441	475
Group No. 2—				
Capitan	8,482	303	327	.....
Elwood	358,132	12,790	12,503	13,462
Rincon	43,345	1,548	1,485	2,064
San Miguelito	26,352	941	833	967
Santa Barbara	21,284	760	571	667
Santa Maria	128,595	4,593	4,987	2,783
Summerland	1,843	66	67	101
Ventura Avenue	837,855	29,923	32,131	37,292
Ventura-Newhall	98,189	3,507	3,209	3,144
Watsonville	1,680	60	60	62
Group No. 3—				
Brea-Olinda (Fullerton)	246,166	8,792	8,853	7,772
Coyote—East	54,216	1,936	1,667 ‡	
Coyote—West	228,548	8,162	8,270 ‡	†9,867
Domingues	452,191	16,150	16,237	18,081
Huntington Beach	1,088,804	38,886	38,551	25,496
Inglewood	249,976	8,928	9,092	12,124
Lawndale	4,454	159	167	267
Long Beach	1,606,206	57,365	58,266	70,105
Los Angeles-Salt Lake	21,862	781	738	920
Montebello	142,269	5,081	4,996	4,708
Newport	.....	.....	.....	.....
Playa Del Rey	247,658	8,845	9,359	12,336
Potrero	11,090	396	394	574
Richfield	209,548	7,484	7,423	6,172
Rosecrans	73,979	2,642	‡2,790	2,995
Santa Fe Springs	1,156,791	41,314	41,385	52,562
Seal Beach	293,898	10,496	10,763	11,114
Torrance	180,899	6,461	6,588	6,263
Whittier	31,863	1,138	1,111	1,106
Total February	12,593,784	449,778	456,886	468,109
Total January	14,163,468	456,886	.....	.....
Decrease	1,569,684	7,108	.....	.....

*Lost Hills figure includes North and South Belridge.
†East and West Coyote were previously combined as Coyote.
‡Daily average for Rosecrans in the January report should have been 2,790 instead of 4,790. All other figures were correct.

Natural Gasoline Price Influences Motor Fuel

(Continued from Page 39)

motor fuel. Of this amount natural constitutes not quite 100,000 bbls. This 10 per cent of the total demand is not adequately considered in the present methods of allocating crude to market demand, and thus there remains an oversupply in the market. If, however, this figure is included as part of the supply, the gasoline allocations are adjusted to compensate, then the market demand will immediately take care of the natural which now goes into storage, into cut-rate marketers' hands or into low-priced export market. Since each of these effects is detrimental to the motor fuel price structure the desirability of their cure is apparent.

The routes to market for natural will follow along the line of least economic resistance. The use of integrated companies' pipe line systems, bulk station blending at large distribution points, and direct stabilization to motor fuel are cases in point where individual companies have effected intracompany savings. Any such use of natural to keep it going in a regular route to market is desirable.

The main point is, however, to so regulate supply that it will balance market demand. The inevitable conclusion is that this can best be done by increasing the effectiveness of curtailment of national crude production and by the regulation of dry gas production in areas such as Panhandle.

Resurfacing Refinery Equipment Practicable

(Continued from Page 36)

sides of an agitator for Sinclair Refining Co. at Sand Springs, Okla.

Our outstanding work in the rebuilding of plungers has been for the Tide Water Oil Co. refinery at Drumright. We have completed the covering of 10 of these. The plungers are 8½ inches in diameter and 42 inches long. They come to us undercut a full one-sixteenth inch over a length of 34 inches. After blasting with steel grit, they are covered to oversize with stainless steel 18 per cent chromium and 8 per cent nickle. They are ground and polished to finish exact diameter. The first plunger was delivered July 20, 1933, and is now in the pump.

We are watching with interest the progress being made outside our territory. Outstanding is the test of aluminum lining being made by the Universal Oil Products Co. in a 5'x25' chamber at the Shell company's East Chicago plant. The work was done some months ago.

The Standard Oil Co. in the Chicago district has coated vertical sections on the inside of floating roof storage tanks, also the shoes attached to the decks with zinc to prevent discoloration of distillates and gasoline from rust.

During the development period there have been failures principally due to ignorance or inexperience—we find it is always the man, not the process.

FILE THIS PAGE FOR FUTURE REFERENCE

USER'S DATA ON USS PLYKROME

USS PLYKROME is available in these sizes:

Maximum Width of Plate	72 inches
Maximum Length of Plate	24 feet
Minimum Thickness	1/8 inch
Maximum Thickness	5/8 inch
Thickness of Stainless Steel Veneer	
On plates 1/4 inch thick or heavier	.030 inch or .060 inch
On plates lighter than 1/4 inch	.030 inch

Stainless Veneer is USS Stabilized 18-8
Backing Plate is Low Carbon Steel
Standard Finishes Available: Sand blast

For data on lighter weights or special finishes write Illinois Steel Company.

CORROSION RESISTANCE . . . . . .

On its stainless face, PLYKROME is completely inert under all natural atmospheres containing the usual traces of corrosive gases and moisture.

It is also resistant to the corrosive action of a wide variety of chemicals and of by-product reagents and raw materials. While service tests should determine the performance of PLYKROME under actual conditions, the following list will indicate the wide variety of media to which PLYKROME is highly resistant:

- Acetic Acid cold, at any concentration; hot, up to 10%
- Alkaline Solutions including Ammonium Hydroxide
- Bichloride of Mercury in usual antiseptic strengths
- Carbolic Acid
- Carbonated Water
- Citric Acid cold, moderate strength
- Copper Sulphate
- Fruit and Vegetable Juices
- Hydrogen Peroxide
- Fermented or Distilled Drinks
- Hydrogen Sulphide
- Laundry Solutions with few exceptions
- Milk and Dairy Products
- Nitric Acid
- Photographic Solutions
- Salt Solution
- Sea Water
- Sulphuric Acid cold, very slight action
- Sulphurous Acid
- Wood Pulp
- Yeast
- Zinc Chloride, cold
- Zinc Sulphate

FABRICATION FACTS . . . . . .

PLYKROME generally may be worked in accordance with the usual methods and with the same equipment as employed on ordinary carbon steels. It may be:

Welded Formed Hot Deep Drawn
Beaded Cold Rolled

PLYKROME does not oxidize at elevated temperatures once a thin adherent scale is formed. It scales comparatively little below 1600 to 1650 degrees F.

Because its Stainless Steel surface has been stabilized, PLYKROME does not require annealing following welding or hot forming, to preserve its corrosion resistant qualities. This is of particular importance on those products which cannot be heat-treated after fabrication.

USS PLYKROME Illinois Steel Company
208 SOUTH LASALLE STREET, CHICAGO, ILLINOIS
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
U S S CHROMIUM-NICKEL ALLOY STEELS ARE PRODUCED UNDER LICENSES OF THE CHEMICAL FOUNDATION, INC., NEW YORK, AND FRIED. KRUPP A. G. OF GERMANY

Bureau of Mines Statistics for the Month of February, 1934

SUPPLY AND DEMAND OF ALL OILS

(Thousands of barrels of 42 gallons)

	February, 1934	January, 1934	February, 1933	Jan.-Feb., 1934	Jan.-Feb., 1933
NEW SUPPLY:					
Domestic production:					
Crude petroleum	65,450	71,976	61,029	137,426	125,027
Daily average	2,338	2,321	2,180	2,329	2,119
Natural gasoline	2,783	3,024	2,543	5,807	5,419
Benzol*	132	130	88	262	183
Total production	68,365	75,130	63,660	143,495	130,629
Daily average	2,442	2,424	2,274	2,432	2,214
Imports:					
Crude petroleum	†3,031	†2,800	2,369	5,831	5,200
Refined products	278	1,244	1,615	1,522	2,790
Total new supply, all oils	71,674	79,174	67,644	150,848	138,619
Daily average	2,560	2,554	2,416	2,557	2,349
Decrease in stocks, all oils	3,957	4,357	‡1,097	8,314	3,127
DEMAND:					
Total demand	75,631	83,531	66,547	159,162	141,746
Daily average	2,701	2,695	2,377	2,698	2,402
Exports:					
Crude petroleum	2,511	2,288	1,886	4,799	3,823
Refined products	5,597	5,362	4,480	10,959	10,796
Domestic demand:					
Motor fuel	24,947	29,519	23,312	54,466	49,822
Kerosene	4,154	4,245	3,274	8,399	6,930
Gas oil and fuel oil	29,450	‡32,482	27,156	61,932	55,670
Lubricants	1,128	1,359	1,101	2,487	1,960
Wax	83	89	87	172	166
Coke	806	1,056	786	1,862	1,657
Asphalt	358	386	344	744	849
Road oil	151	181	79	332	177
Still gas (production)	3,060	3,457	2,914	6,507	6,138
Miscellaneous	161	47	126	208	235
Losses and crude used as fuel	3,235	§3,060	1,002	6,295	3,523
Total domestic demand	67,523	75,881	60,181	143,404	127,127
Daily average	2,412	2,448	2,149	2,431	2,155
STOCKS:					
Crude petroleum	351,641	353,642	335,060	351,641	335,060
Natural gasoline	3,785	3,906	3,397	3,785	3,397
Refined products	240,450	242,285	246,525	240,450	246,525
Total, all oils	595,876	599,833	584,982	595,876	584,982
Days' supply	221	223	246	221	244

*From Coal Division. †Receipts of foreign crude as reported to Bureau of Mines. ‡Increase. §Revised.

SHIPMENTS OF MOTOR FUEL BY PIPE LINES

(Thousands of barrels of 42 gallons)

	February, 1934	January, 1934	February, 1933	Jan.-Feb., 1934	Jan.-Feb., 1933
Motor fuel turned into lines	2,984	3,274	2,394	6,258	4,810
Motor fuel delivered from lines	2,951	3,357	2,302	6,308	4,739
Shortage	9	6	1	15	6
Stocks in lines and working tanks end of month	1,250	1,226	1,263	1,250	1,263

COMPARATIVE ANALYSES

(Thousands of barrels of 42 gallons)

	February, 1934 Total	February, 1934 Daily av.	January, 1934 Total	January, 1934 Daily av.	Jan.-Feb., 1934	Jan.-Feb., 1933
CRUDE PETROLEUM:						
Runs to stills	66,470	2,374	71,512	2,307	137,982	127,135
MOTOR FUEL:						
Production	30,750	1,098	33,312	1,074	64,062	59,283
Imports	.....	.....	1	.....	1	.....
Exports*	2,025	72	1,940	63	3,965	4,485
Stocks, gasoline	56,653	.....	52,754	.....	56,653	55,384
Stocks, natural gasoline	3,785	.....	3,906	.....	3,785	3,397
Domestic demand	24,947	891	29,519	952	54,466	49,822
KEROSENE:						
Production	3,961	141	4,507	145	8,468	8,054
Imports	.....	.....	.....	.....	.....	.....
Exports	736	26	591	19	1,327	1,524
Stocks	5,299	.....	6,228	.....	5,299	4,574
Domestic demand	4,154	148	4,245	137	8,399	6,930
GAS OIL AND FUEL OIL:						
Production	24,386	871	‡26,231	846	50,617	49,361
Transfers†	682	24	1,145	37	1,827	2,054
Imports	256	9	1,196	39	1,452	2,741
Bonded warehouses	200	7	1,071	35	1,271	796
For domestic use	56	2	‡125	4	181	1,945
Exports	2,046	73	1,738	56	3,784	3,249
Stocks	110,967	.....	117,139	.....	110,967	124,208
Domestic demand	29,450	1,052	‡32,482	1,048	61,932	55,670
Railroad (Class I)‖	(¶)	(¶)	3,632	130	‖3,632	‖3,316
Pub. util pow. plants**	882	32	‡909	29	1,791	1,206
Other	(¶)	(¶)	27,944	901	56,509	51,148
Bunker oil	2,331	83	2,592	84	4,923	5,359
LUBRICANTS:						
Production	1,865	67	2,198	71	4,063	3,448
Imports	.....	.....	.....	.....	.....	.....
Exports	637	23	849	27	1,486	1,051
Stocks	7,120	.....	7,020	.....	7,120	8,812
Domestic demand	1,128	40	1,359	44	2,487	1,960
WAX (thous of pounds):						
Production	39,200	1,400	46,480	1,499	85,680	64,680
Imports	4,961	177	7,641	246	12,592	6,519
Exports	16,307	582	18,971	612	35,278	40,383
Stocks	83,791	.....	78,924	.....	83,791	147,849
Domestic demand	22,987	821	25,049	808	48,036	46,595
COKE (short tons):						
Production	120,800	4,314	127,000	4,097	247,800	201,800
Stocks	594,600	.....	637,000	.....	594,600	1,171,800
ASPHALT (short tons):						
Production	106,100	3,789	141,800	4,574	247,900	196,500
Imports (natural)	700	25	2,900	94	3,600	3,900
Stocks	330,600	.....	303,500	.....	330,600	294,400

*Includes benzol—2,456 bbls. in February, 1934. †Net transfers in California. ‡Revised ‖Interstate Commerce Commission. ¶Not available. §January only. **U. S. Geol. Survey.

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN THE UNITED STATES*

(Thousands of barrels of 42 gallons)

	February, 1934	January, 1934	February, 1933	Jan.-Feb., 1934	Jan.-Feb., 1933
Gasoline	193	471	678	664	1,248
Natural gasoline	.....	.....	.....	.....	81
Kerosene	262	205	224	467	629
Gas oil land Diesel oil	270	510	258	780	978
Fuel oil	1,454	1,370	159	2,824	232
Lubricants	1	9	9	10	8
Asphalt	.....	1	.....	1	....
Miscellaneous	2	1	15	3	31
Total	2,182	2,567	1,342	4,749	3,207

*Compiled by E. T. Knudsen of the San Francisco office of the Bureau of Mines.

NUMBER OF WELLS COMPLETED IN THE UNITED STATES*

	February, 1934	January, 1934	February, 1933	Jan.-Feb., 1934	Jan.-Feb., 1933
Oil	810	910	516	1,720	1,168
Gas	94	110	79	204	158
Dry	286	332	316	618	599
Total	1,190	1,352	911	2,542	1,925

*From The Oil and Gas Journal and California office of American Petroleum Institute.

RECORD OF WELLS FOR IMPORTANT FLUSH FIELDS, FEBRUARY, 1934*

	Completions: Oil	Gas	Dry	Total initial prod. (bbls.)	Aver. initial prod. (bbls.)	Drilling Feb. 28
Texas	466	29	159	646,890	1,400	1,009
East Texas	239	1	11	501,900	2,100	†381
Gulf Coast	47	6	34	34,700	740	179
Conroe	14	2	3	24,500	1,750	23
Greta	2	1	...	510	260	17
West Texas	27	...	7	77,990	2,900	120
California	21	...	7	10,400	500	180
Kettleman Hills	...	...	...	.....	.....	25
Long Beach	3	...	2	1,700	200	31
Huntington Beach	5	...	...	4,700	940	2
Oklahoma	80	3	27	19,700	250	371
Oklahoma County	3	...	...	3,040	1,010	18
Pottawatomie and Seminole Counties	15	...	2	3,800	250	46
New Mexico	1	3	1	10	10	62
Lea County (Hobbs)	...	...	...	.....	.....	11
Other states	242	54	92	45,000	190	1,055
Total United States	810	94	286	722,000	900	2,677

*From The Oil and Gas Journal and California office of American Petroleum Institute. †Includes rigs.

STOCKS HELD BY REFINING COMPANIES, FEBRUARY 28, 1934

(Thousands of barrels of 42 gallons)

	Gasoline: At refineries	Gasoline: Bulk and pipe lines	Gasoline: Total	Kerosene	Gas oil and distillate fuels	Residual fuel oil
East Coast	6,815	10,753	17,568	949	1,887	3,540
Appalachian	1,557	801	2,358	265	225	237
Ind., Ill., Ky., etc.	5,648	3,259	8,907	586	1,737	1,833
Okla., Kans., Mo.	4,250	1,636	5,886	630	1,100	1,948
Texas Inland	1,584	*59	1,643	128	246	1,865
Texas Gulf	4,820	*894	5,714	918	2,645	2,792
Louisiana Gulf	1,085	†803	1,888	301	1,026	1,268
Ark. and La. Inland	245	†40	285	20	293	983
Rocky Mountain	1,087	.....	1,087	225	199	367
California	7,545	3,772	11,317	1,277	2,964	83,812
Total	34,636	22,017	56,653	5,299	12,322	98,645

	Wax (thous. of pounds): Lubricants	Crude scale	Refined	Total	Coke (tons)
East Coast	2,275	11,982	19,819	31,801	8,800
Appalachian	796	10,991	2,038	13,029	3,500
Ind., Ill., Ky., etc.	610	10,428	1,732	12,160	86,200
Okla., Kans., Mo.	597	2,213	1,108	3,321	76,500
Texas Inland	93	.....	130	130	61,200
Texas Gulf	1,653	1,955	10,975	12,930	145,100
Louisiana Gulf	83	347	1,227	1,574	7,100
Ark. and La. Inland	18	.....	.....	.....	100
Rocky Mountain	135	7,822	1,024	8,846	104,900
California	860	.....	.....	.....	101,200
Total	7,120	45,738	38,053	83,791	594,600

	Asphalt (tons)	Road oil	Miscellaneous	Unfinished oils: Crude gaso.	Unfinished oils: Other	Natural gasoline
East Coast	110,500	92	71	1,452	7,461	167
Appalachian	10,000	37	44	375	1,599	4
Ind., Ill., Ky., etc.	86,100	43	11	1,825	5,736	29
Okla., Kans., Mo.	6,300	180	39	929	5,234	37
Texas Inland	.....	20	8	577	1,089	7
Texas Gulf	12,900	35	11	3,096	9,852	146
Louisiana Gulf	27,300	15	.....	431	1,492	.....
Ark. and La. Inland	30,400	34	2	85	293	6
Rocky Mountain	2,800	204	8	622	1,892	8
California	44,300	205	186	6,126	3,619	2,393
Total	330,600	865	380	15,521	38,567	2,797

*Approximately 100,000 bbls. formerly included in Texas Inland transferred to Texas Gulf. †Approximately 300,000 bbls. formerly included in Arkansas and Louisiana Inland transferred to Louisiana Gulf.

RECEIPTS OF FOREIGN CRUDE PETROLEUM

(Thousands of barrels of 42 gallons)

Atlantic Seaboard:	Feb., 1934	Jan., 1934
Venezuela	1,797	1,443
Colombia	304	666
Mexico	678	543
Ecuador	....	79

Gulf Coast:	Feb., 1934	Jan., 1934
Mexico	146	69
Venezuela	106	....
Total, Atlantic-Gulf	3,031	2,800

STOCKS OF CRUDE PETROLEUM BY STATES AND BY LOCATION

(Thousands of barrels of 42 gallons)

	February 28, 1934: Refinery	Pipe line	Lease	Total	January 31, 1934: Refinery	Pipe line	Lease	Total
Arkansas	570	4,368	390	5,328	583	4,547	380	5,510
California	8,341	25,009	1,798	35,148	9,041	24,823	1,781	35,645
Colorado	244	78	18	340	242	72	17	331
Georgia*	604	.....	.....	604	468	.....	.....	468
Illinois	1,189	10,531	117	11,837	1,113	10,726	112	11,951
Indiana	1,297	1,621	8	2,926	1,409	1,903	8	3,320
Kansas	1,337	12,572	362	14,771	1,885	12,589	362	14,836
Kentucky†	434	593	77	1,104	491	574	75	1,140
Louisiana‡	4,515	7,100	230	11,845	4,471	7,679	220	12,370
Maryland	1,415	.....	.....	1,415	1,154	.....	.....	1,154
Massachusetts§	1,359	.....	.....	1,359	1,161	.....	.....	1,161
Michigan	317	756	75	1,148	363	636	72	1,071
Missouri¶	148	3,417	.....	3,565	149	3,453	.....	3,602
Montana	197	394	75	666	220	351	70	641
New Jersey	5,067	332	.....	5,399	5,443	322	.....	5,765
New Mexico	6	283	190	479	7	246	185	438
New York	1,729	115	17	1,861	1,833	104	17	1,954
Ohio	1,243	7,534	120	8,902	1,219	7,497	115	8,831
Oklahoma	4,022	79,894	1,590	85,506	4,127	79,495	1,520	85,142
Pennsylvania	3,943	1,732	95	5,770	3,359	1,934	95	5,388
Texas	13,170	106,175	2,750	122,095	13,651	107,227	2,600	123,478
Utah	291	.....	.....	291	204	.....	.....	204
West Virginia	52	2,184	135	2,371	57	2,230	130	2,417
Wyoming‖	11,928	14,603	380	26,911	11,849	14,616	360	26,825
Total United States	63,923	279,291	8,427	351,641	64,499	281,024	8,119	353,642

*Includes South Carolina and Virginia. †Includes Tennessee. ‡Includes Alabama. §Includes Rhode Island. ¶Includes Iowa. ‖Includes Nebraska and South Dakota.

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Louisiana Oil Refining Corp., Shreveport, La.

CITIES SERVICE OILS AND GASOLENES

PRODUCTION OF CRUDE PETROLEUM BY STATES AND PRINCIPAL FIELDS

(Thousands of barrels of 42 gallons)

	February, 1934		January, 1934		Jan.-Feb.,	Jan.-Feb.,
	Total	Daily av.	Total	Daily av.	1934	1933
Arkansas	853	31	956	31	1,809	1,764
California:						
Huntington Beach	1,089	39	1,195	39	2,284	1,512
Kettleman Hills	1,394	50	1,597	52	2,991	3,406
Long Beach	1,606	57	1,806	58	3,412	4,088
Santa Fe Springs	1,157	41	1,283	41	2,440	3,166
Rest of State	7,348	263	8,282	267	15,630	15,395
Total California	12,594	450	14,163	457	26,757	27,567
Colorado	83	3	87	3	170	162
Illinois	337	12	393	13	730	560
Indiana	52	2	72	2	124	94
Kansas	3,217	115	3,407	110	6,624	5,739
Kentucky	330	12	362	12	692	774
Louisiana:						
Gulf Coast	1,230	44	1,351	44	2,581	1,956
Rest of State	766	27	852	27	1,618	1,615
Total Louisiana	1,996	71	2,203	71	4,199	3,571
Michigan	813	29	822	27	1,635	828
Montana	207	7	222	7	429	305
New Mexico	1,186	42	1,319	42	2,505	2,027
New York	246	9	306	10	552	493
Ohio:						
Central and Eastern	225	8	269	8	494	522
Northwestern	56	2	89	3	145	155
Total Ohio	281	10	358	11	639	677
Oklahoma:						
Oklahoma City	4,600	164	5,589	180	10,189	7,425
Seminole	2,890	104	3,311	107	6,201	6,444
Rest of State	6,005	214	6,318	204	12,323	11,423
Total Oklahoma	13,495	482	15,218	491	28,713	25,292
Pennsylvania	952	34	1,152	37	2,104	1,876
Tennessee	1	.....	1	.....	2	1
Texas:						
Gulf Coast	4,484	160	4,913	158	9,397	7,442
West Texas	3,601	129	3,994	129	7,595	9,537
East Texas	13,167	470	13,989	451	27,156	21,092
Panhandle	1,471	53	1,326	43	2,797	2,662
Rest of State	4,900	175	5,464	176	10,364	10,130
Total Texas	27,623	987	29,686	957	57,309	50,863
West Virginia	291	10	340	11	631	556
Wyoming:						
Salt Creek	510	18	524	17	1,034	1,232
Rest of State	383	14	385	12	768	646
Total Wyoming	893	32	909	29	1,802	1,878
Total U. S.	65,450	2,338	71,976	2,321	137,426	125,027

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM

(Thousands of barrels of 42 gallons)

Domestic petroleum by fields of origin:	February, 1934 Total	February, 1934 Daily av.	January, 1934 Total	January, 1934 Daily av.	Jan.-Feb., 1934	Jan.-Feb., 1933
Appalachian:						
Pennsylvania Grade	1,994	71	1,916	62	3,910	3,320
Other (inc. Kentucky)	390	14	496	16	886	986
Lima-N.E. Ind.-Mich.	825	29	964	31	1,789	1,259
Ill.-S.W. Ind.	531	19	290	9	821	568
Mid-Continent:						
N. La. and Ark.	1,950	70	1,796	58	3,746	4,333
W. Texas-S.E. N. Mex.	5,559	199	6,226	201	11,785	11,209
East Texas	12,927	462	14,816	478	27,743	66,226
Other (Okla., Kans., N. Tex., etc.)	23,988	857	24,702	797	48,690	
Gulf Coast	6,138	219	5,847	189	11,985	10,786
Rocky Mountain	1,015	36	1,181	37	2,196	2,197
California	12,440	444	13,803	445	26,243	25,038
Total demand	67,757	2,420	72,037	2,323	139,794	125,922
Exports	2,511	90	2,288	74	4,799	3,823
Domestic demand	65,246	2,330	69,749	2,249	134,995	122,099
Foreign petroleum	2,074	74	2,808	91	4,882	5,524
Total domestic demand	67,320	2,404	72,557	2,340	139,877	127,623

RUNS TO STILLS AND OUTPUT OF REFINERIES, FEBRUARY, 1934

(Thousands of barrels of 42 gallons)

	Crude oil			Unfin. rerun (net)		Natural
Input—	Domestic	Foreign	Total	Crude gasoline	Other	gasoline
East Coast	10,693	2,050	12,743	404	—378	126
Appalachian	2,527	.....	2,527	61	226	17
Ind., Ill., Ky., etc.	8,793	.....	8,793	57	12	148
Okla., Kans., Mo.	7,137	.....	7,137	—54	—95	405
Texas Inland	4,562	.....	4,562	—74	69	302
Texas Gulf	13,260	21	13,281	—299	—538	98
Louisiana Gulf	3,208	44	3,252	51	—4	36
Ark. and La. Inland	1,498	.....	1,498	—3	79	42
Rocky Mountain	968	.....	968	5	27	59
California	11,709	.....	11,709	—854	—41	706
Total	64,355	2,115	66,470	—706	—643	1,939

Output—	Gasoline	Kerosine	Gas oil and distillate fuels	Residual fuel oil	Lubricants	Wax (thous. of lbs.)
East Coast	5,383	817	1,510	3,601	476	17,920
Appalachian	1,347	218	260	306	382	6,440
Ind., Ill., Ky., etc.	5,146	262	820	1,377	171	4,480
Okla., Kans., Mo.	4,092	458	476	1,444	230	2,520
Texas Inland	2,459	256	270	1,436	28	280
Texas Gulf	5,046	1,112	1,618	3,292	370	2,520
Louisiana Gulf	1,283	331	337	1,095	37	2,520
Ark. and La. Inland	670	65	123	590	8	.....
Rocky Mountain	594	35	66	227	18	2,520
California	4,177	407	1,692	4,528	147	.....
Total	†30,197	3,961	7,172	17,896	1,865	39,200

Output (cont.)—	Coke (tons)	Asphalt (tons)	Road oil	Still gas	Miscellaneous	Shortage
East Coast	10,400	32,500	11	546	35	221
Appalachian	1,600	5,100	8	137	17	97
Ind., Ill., Ky., etc.	48,000	31,300	33	674	6	93
Okla., Kans., Mo.	21,000	700	5	335	22	213
Texas Inland	4,600	.....	6	130	6	244
Texas Gulf	23,200	11,700	8	685	4	218
Louisiana Gulf	3,400	4,500	3	142	.....	56
Ark. and La. Inland	200	8,900	17	34	5	54
Rocky Mountain	6,800	.....	1	58	3	16
California	1,600	11,400	66	309	24	99
Total	120,800	106,100	158	3,050	122	1,311

*Includes 117,000 bbls. run through pipe lines. †Includes 412,000 bbls. special naphthas.

Cracked Operations

Fresh cracking stock charged to stills: Crude 3,503,000 bbls., other oils 27,887,000 bbls.; gasoline produced by cracking 12,793,000 bbls.; fuel oil produced by cracking 12,823,000 bbls.

PRODUCTION OF CRUDE PETROLEUM BY DISTRICTS

(Thousands of barrels of 42 gallons)

	February, 1934 Total	February, 1934 Daily av.	January, 1934 Total	January, 1934 Daily av.	Jan.-Feb., 1934	Jan.-Feb., 1933
Appalachian:						
Pennsylvania Grade	1,599	57	1,933	62	3,532	3,174
Other (inc. Kentucky)	446	16	497	16	943	1,048
Lima-N.E. Ind.-Mich.	569	31	911	30	1,780	985
Ill.-S.W. Ind.	389	14	465	15	854	652
Mid-Continent:						
N. La. and Ark.	1,619	58	1,808	58	3,427	3,379
W. Texas-S.E. New Mex.	4,751	170	5,280	170	10,031	11,517
East Texas	13,167	470	13,989	451	27,156	21,092
Other (Okla., Kans., N. Tex., etc.)	23,083	825	25,415	820	48,498	43,823
Gulf Coast	5,714	204	6,264	202	11,978	9,398
Rocky Mountain	1,219	43	1,251	40	2,470	2,392
California	12,594	450	14,163	457	26,757	27,567
Total	65,450	2,338	71,976	2,321	137,426	125,027

GASOLINE PRODUCTION BY THE VARIOUS METHODS, FEBRUARY, 1934

(Thousands of barrels of 42 gallons)

	Straightrun			Cracked			Nat. gaso.		Gasoline	
		Per cent			Per cent			Per cent		Per cent
	Total	(*)	(†)	Total	(*)	(†)	To al	(†)	Total	(*)
East Coast	3,027	23.8	56.3	2,230	17.5	41.4	126	2.3	5,383	41.3
Appalachian	739	29.2	54.8	591	23.4	43.9	17	1.3	1,347	52.6
Ind., Ill., etc.	2,213	25.1	43.0	2,785	31.7	54.1	148	2.9	5,146	56.8
Okla., Kans., Mo.	2,024	28.4	49.5	1,663	23.3	40.6	405	9.9	4,092	51.7
Texas Inland	1,404	30.8	57.1	753	16.5	30.6	302	12.3	2,459	47.3
Texas Gulf	2,348	17.7	46.5	2,600	19.6	51.5	98	2.0	5,046	37.3
Louisiana Gulf	787	24.2	61.3	460	14.1	35.9	36	2.8	1,283	38.3
Ark. and La. Inland	328	21.9	48.9	300	20.0	44.8	42	6.3	670	41.9
Rocky Mountain	287	29.7	48.3	248	25.6	41.8	59	9.9	594	55.3
California	2,308	19.7	55.3	1,163	9.9	27.8	706	16.9	4,177	29.6
Total	15,465	23.3	51.2	12,793	19.2	42.4	1,939	6.4	30,197	42.5

*Per cent of crude run. †Per cent of total gasoline output.

STOCKS OF CRUDE PETROLEUM

(Thousands of barrels of 42 gallons)

	Feb. 28, 1934	Jan. 31, 1934	Feb 28., 1933
EAST OF CALIFORNIA:			
At refineries by location:			
East Coast: Domestic	9,455	9,419	7,378
Foreign	3,203	2,435	4,748
Appalachian	1,755	1,825	2,317
Indiana, Illinois, Kentucky, Michigan	4,241	4,391	3,758
Oklahoma, Kansas, and Missouri	6,007	6,161	4,031
Texas: Inland	1,865	1,892	1,546
Gulf Coast: Domestic	11,108	11,688	5,912
Foreign	197	71	115
Louisiana Gulf Coast: Domestic	3,588	3,517	3,028
Foreign	604	541	1,049
Arkansas and Inland Louisiana	893	996	421
Rocky Mountain	12,666	12,522	11,884
California	8,341	9,041	11,232
Total	63,923	64,499	58,029
At refineries by origin:			
Pennsylvania Grade	1,518	1,722	2,170
Other Appalachian (inc. Kentucky)	580	598	633
Lima-Northeast Indiana-Michigan	506	557	223
Illinois-Southwest Indiana	160	116	110
North Louisiana and Arkansas	2,569	2,923	2,025
West Texas and Southeast New Mexico	3,845	4,247	4,327
East Texas	9,500	8,892	14,843
Oklahoma, Kansas, North Texas, etc.	15,057	15,505	
Gulf Coast	5,203	4,950	4,701
Rocky Mountain	12,640	12,501	11,853
California	8,341	9,041	11,232
Foreign	4,004	3,047	5,912
Total	63,923	64,499	58,029
Pipe line and tank farm:			
Pennsylvania Grade	3,675	3,875	4,649
Other Appalachian (inc. Kentucky)	903	832	955
Lima-Northeast Indiana-Michigan	1,247	1,155	779
Illinois-Southwest Indiana	11,052	11,243	11,288
North Louisiana and Arkansas	8,969	8,957	10,943
West Texas and Southeast New Mexico	27,161	27,581	31,763
East Texas	36,034	36,472	155,676
Oklahoma, Kansas, North Texas, etc.	139,381	139,528	
Gulf Coast	10,750	11,486	10,428
Rocky Mountain	15,110	15,072	16,064
California	25,009	24,823	28,736
Total	279,291	281,024	271,281
Lease (producers') stocks	8,427	8,119	*5,750
Total refinable crude in the United States	351,641	353,642	335,060

*East of California only.

World Petroleum Congress Publishes Second Volume

The completely bound Proceedings of the World Petroleum Congress held in London, England, July 19-25, 1933, in two volumes, are now available.

The second volume contains 954 pages, bound in cloth and contains the papers presented before the refining, chemical and testing section of the Congress, together with the discussions thereon and is divided as follows:

The Refining of Cracked Gasoline and the Use of Inhibitors for Gum Prevention; Determination of Gum in Gasoline; Knock-Rating; Motor and Aviation Gasoline; Fuels for High-Speed Compression-Ignition Engines, Their Qualities and Methods of Knock-Rating; Hydrogenation; Extraction Processes for the Refining of Oil; Lubricating Oil; Viscosity and Its Expression; Bituminous Materials; Bituminous Emulsions; Kerosene; Alternative Fuels; Oil-Coal Fuels; Petroleum as a Chemical Raw Material; Measurement of Oil in Bulk; and International Co-operation in Standardization.

In as much as these papers represent the experiences of refiners in all countries and are both timely and complete, Volume 2 should prove a valued addition to the library of anyone interested in the petroleum industry, especially so to those engaged in the refining of petroleum.

In addition to the two main volumes sectional volumes are available to those who desire only special subjects. These sectional volumes are divided as follows: Volume A, Geological Significance of the Regional Distribution of Oilfields, 82 pages; Volume B, Modern Development in Geological Exploration. Geophysics, 112 pages; Volume C, Modern Developments in Geological Exploration. Aeroplane Reconnaissance and Photography; Evaluation of Surface Evidences of Petroleum, Field Methods, Geological Aspects of Oilfield Development, 154 pages; Volume D, Production Section: Drilling, Production, Transportation and Storage, 206 pages.

These constitute Volume 1. The individual sections in Volume 2 may be secured as Volume E to Volume I, inclusive, subdivided as given in the preceding description of the second volume.

These proceedings are available at the offices of the Congress, Aldine House, Bedford Street, London, W. C. 2, England, or through the representative in this country, W. S. Malloy, 8-10 Bridge Street, New York City.

Cayuga Field Looming as Important Development

(Continued from Page 18)

count of the great thickness of its sand body. The Powell Field produced around 40,000 bbls. per acre, Mexia produced nearly 25,000 bbls. per acre and other fault line fields, which lie about 25 or 30 miles west of the Cayuga discovery, have produced from 28,000 to 31,000 bbls. per acre.

Rector and Webb's No. 1 Riddlesberger, in the W. F. Mitcham Survey, approximately 6 miles northeast of the discovery well of the Cayugo Pool, but in Henderson County, is drilling near 3,800 feet. The operators are making a mystery test of this and formation dope has not been given out, but it apparently is running much lower than the Cayuga wells and is considered as probably being dry. This test will limit the extension of the Cayuga Pool in that direction if it does prove dry.

Accessibility to Pools

The Cayuga Field is approximately the same distance from the towns of Corsicana, Athens and Palestine, about 25 miles from each. However operators, geologists and others watching this part of the district make headquarters at Palestine since the first gas showing was logged in the Long Lake discovery well in September, 1933. A hard surfaced and gravel road leads almost to the Cayuga area from Palestine, which being located at the junction of several good highways, a railroad center, and the county seat for Anderson County, is the logical place to be chosen as the base of operations, not only for the two companies holding the large blocks in the two areas, but also for other companies and operators now wildcatting and operating in the southern tier of counties and for supply companies that intend moving warehouses into the area.

The Long Lake area is on a branch line railroad, the old town or switch of Long Lake being about 1 mile from the discovery well. If this area proves of major importance as an oil producing field, although it does not appear as such at the present time, this switch would be the place to locate branch warehouses, although the pool is only 12 miles west of Palestine on a concrete highway and supplies could readily be trucked into the Long Lake and Cayuga Pools from warehouses at Palestine.

Malakoff, a town approximately 12 or 15 miles north of the Cayuga Pool, is another probable site for supply houses as the town is on a branch line railroad, and the highway from that place to the Cayuga area will probably be improved.

A "boom" town is now in the process of construction about 1½ miles east of the Cayuga area. A gravel road has been constructed from this place to the Cayuga Pool and the jointly operating companies are laying corduroy roads to the locations in the field to traverse the deep, poorly drained black loam covering the surface in the area. Heavy rainfalls make it almost impossible to truck material into wells without the aid of corduroy or other constructed roads, almost the same conditions prevailing in the low lying Long Lake area to the south. These conditions also call for the settling of steel derricks upon substructures to put the derrick floors and machinery above mud and water.

Easy Drilling

Drilling is easy in the area, one well being put down to the Woodbine in nine days, but Christmas tree equipment on the wells is complicated and heavy on account of the high gas pressure, the companies taking no chances with blowouts when drilling in or after the wells are completed.

D. E. Legan is district superintendent of the East Texas district, in which the Cayuga area is located, and Guy Wade, also of the Tide Water Oil Co., is superintendent in charge of the Long Lake and Cayuga Fields.

Five wells, three of which are gassers, are now producing or shut in in Long Lake area, and soon four wells will be on production in the Cayuga area. No more locations have yet been staked in either areas and the companies will no doubt develop the blocks slowly and systematically. The Railroad Commission has issued regulations as to drilling and equipping, planning and best development methods. As the two companies hold practically all the acreage within the blocks, having sold but few edge leases and some royalty under them, the two areas will not become burdensome. It looks as if vacancies, strip leases and "chiseling in" on leases in the Cayuga area has been taken care of by the two operating companies taking blanket leases to prevent such occurrences.

The state will soon accept bids on about 120 acres of Trinity River Bed leases west of the discovery well and on the west side of the block. If the two operating companies acquire these leases they will forestall an active drilling campaign, but if other companies or operators acquire leases in the river bed many tests may be staked along the river causing offset wells on each side unless these leases are dry.

The Stanolind Oil & Gas Co., Sun Oil Co., Roeser & Pendleton of Fort Worth, Barnsdall, and Hill & Hill of Fort Worth hold leases on the edges of the block, some of which may be considered in the block, and the Darby Petroleum Corp., Amerada Petroleum Corp. and Stanolind Oil & Gas Co. have acquired considerable royalty under the block from the two operating companies.

The two companies may decide to lay a line of their own connecting with the Texas-Empire Pipe Line Co.'s trunk line from the East Texas Field to the Gulf Coast, which runs about 40 miles east of the Cayuga area. A connection may also be made with the Long Lake Pool. Tide Water Oil Co. holds an interest in the Texas-Empire Pipe Line Co. line, consequently it is believed such a connection will be made rather than laying a separate line from the two fields direct to the Gulf Coast, a distance of around 135 miles. Some outlet will have to be constructed as the Texas Pipe Line Co. is transporting oil from the field at the present time only on a temporary basis.

Problems of Eastern Oil Fields on A.P.I. Program

(Continued from Page 16)

Petroleum: Chairman, H. H. Hill; secretary, C. A. Young.

Central Committee on Standardization of Oil Field Equipment: Chairman J. Edgar Pew; secretary, C. A. Young.

Committee on Standardization of Belting (tentative): Chairman, A. H. Riney; secretary, L. B. Holland.

Committee on Standardization of Rigs and Derricks (tentative): Chairman, W. H. Meier; secretary, Hu M. Harris.

Committee on Standardization of Oil Country Tubular Goods: Chairman, John R. Suman; vice chairman, Charles Fitzgerald; secretary, Melbert Schwarz.

Committee on Standardization of Rotary Equipment: Chairman, E. J. Nicklos; secretary, E. E. Greve.

Committee on Standardization of Pumping Equipment and Engines: Chairman, T. E. Swigart; secretary, H. N. Marsh.

Committee on Standardization of Steel Tanks for Oil Storage (tentative): Chairman, R. W. Howe.

Central Committee on Drilling and Production Practice: Chairman, W. K. Whiteford; vice chairman, Fred E. Wood; secretary, C. A. Young.

Topical Committee on Allocation of Production: Chairman, Fred E. Wood.

Topical Committee on Metallurgy and Corrosion of Oil Field Equipment: Chairman, Blaine B. Wescott.

Topical Committee on Drilling Practice: Chairman, A. C. Rubel.

Committee on Measuring, Sampling, and Testing Natural Gas and Natural Gasoline: Chairman, F. E. Rice; secretary, C. A. Young.

Group 1, Subcommittee on Natural Gasoline: Chairman, S. S. Smith.

Group 2, Subcommittee on Natural Gas: Chairman, George P. Bunn.

Central Committee on Pipe Line Transportation (tentative): Chairman, C. H. Kountz; secretary, C. A. Young.

Refining Division Committees

Division of Refining, General Committee: Chairman, Howard Bennette; secretary, R. P. Anderson.

Committee on Standardization of Refinery Equipment: Chairman A. E. Pew, Jr.; secretary, R. P. Anderson.

Committee on Testing Methods and Specifications: Chairman K. G. Mackenzie; secretary, R. P. Anderson.

Central Committee on Refinery Technology: Chairman, R. E. Wilson; secretary, R. P. Anderson.

Committee on Disposal of Refinery Wastes: Chairman, John S. Hess; secretary, D. V. Stroop.

Marketing Division Committees

Division of Marketing, General Committee: Chairman, C. E. Arnott; secretary, D. V. Stroop.

Committee on Marketing Equipment: Chairman, H. C. Meyer; secretary, D. V. Stroop.

Committee on Railroad Transportation: Chairman, Fayette B. Dow; secretary, D. V. Stroop.

Other Committees

Board of Directors.

American Petroleum Industries Committee: Chairman, Harry T. Klein.

Committee on Uniform Methods of Oil Accounting: Chairman, V. L. Elliott.

Potential Oil and Gas in Northeastern Arkansas

(Continued from Page 32)

can be reached in wells without excessively deep drilling. Over the greater part of the area, 3,000 feet or less will reach Paleozoic rocks. (See map.)

In north central Arkansas, between the Ouachita Mountains and White River, there is a wide trough of Pennsylvanian shale and sand plunging westward into Oklahoma.

In north central and western Arkansas, buttressed between the Ouachita Mountains on the south and the Ozarks on the north, the Paleozoic rocks have been so metamorphosed that the possibilities of production are practically limited to gas. Westward, in Oklahoma, the influence of the mountain folding has disappeared and oil, instead of gas, predominates. In eastern Oklahoma sands of Pennsylvanian age are the source of much of the early oil and gas produced in that State.

In northeastern Arkansas the Pennsylvanian is shown on the map as underlying the entire Mississippi basin from the Paleozoic scarp in Arkansas to the Pennsylvanian outcrop in northwestern Alabama and is designated on the map as "CP."

East of the scarp in Arkansas, the forces which have compressed the Pennsylvanian and older rocks between the Ouachita and Ozarks have probably never operated and the shales, instead of being metamorphosed into slates or semislates, are found in well samples to be soft; the sands, instead of being quartzose, will probably be found to have porosities up to 10 and perhaps as great as 15 per cent.

Such a condition in the Pennsylvanian formations east of the Paleozoic scarps offers possibilities for the accumulation of oil and gas. These rocks are buried beneath a mantle of Tertiary and Cretaceous sediments, and their structural attitude and pay horizons can only be determined by wells drilled throughout the area.

Folds in the Pennsylvanian rocks in central and western Arkansas are quite plentiful, but due to excessive metamorphism very little if any commercial oil is produced. The hydrocarbons in the form of oil, through the process of hydrogenation, have been converted into gas. Further east, in northeastern Arkansas, metamorphism has not affected the beds and there seems no valid reason why the folds of central Arkansas should not continue eastward, in the Paleozoic rocks beneath the Gulf Coastal sediments, with a lesser intensity and without the metamorphism which accompanies the folding north of the Ouachita Mountain overthrust. Should there be gentle folding in northeastern Arkansas, in rocks similar to those in Oklahoma where vast quantities of oil and gas have accumulated, then we may expect production of oil and gas in northeastern Arkansas.

Chester Group

While the Pennsylvanian is the source of much of the oil and gas in Oklahoma, the underlying Mississippian, or Chester, in southern Illinois and western Kentucky, has produced the greater part of the oil of these areas. The most prolific field ever opened in Illinois was in Crawford and Lawrence Counties on what is known as the La Salle anticline. The greater part of the oil from that field came from the Chester sands. Also the source of the oil in Davies and Henderson Counties, Kentucky is from Chester sands.

The Chester group is the upper part of the Mississippian which immediately underlies the Pennsylvanian and has probably been reached in a few of the wells drilled in northeastern Arkansas. We know that it is present in northwestern Alabama, where the sands, due to metamorphism, have lost much of their porosity due to intense folding of the Appalachian mountain range.

The presence of Chester sands in northeastern Arkansas within reach of the drill would be well worth testing for oil and gas. The eastern half of the area is probably too deeply buried for economic exploitation at the present time. A study of the map, Figure 1, shows that the Mississippian comes closer to the surface in the northern part of the area and has a strike of slightly northwest-southeast.

While the Pennsylvanian and the Chester of northeastern Arkansas offer possibilities for oil and gas development, we cannot ignore the reported showings of oil and gas in wells from the Nacatoch and lower horizons of the Cretaceous.

A study of the logs of wells shows unmistakable evidence of the presence of oil and gas in Cretaceous sediments. The relation of these wells to the favorable structural folding on which the wells are located leads to a two-fold conclusion, viz.: first, that oil and gas are present in the Cretaceous, and second, that where ideal structural conditions exist, commercial production from Cretaceous sands of northeastern Arkansas may become a reality.

Resume

In northeastern Arkansas rocks of Tertiary, Cretaceous and Paleozoic age are present underlying a mantle of Pliocene, Pleistocene and recent alluvium.

Northeastern Arkansas offers possibilities for oil and gas development from Paleozoic rocks which underlie the area, and over the greater part of it they are within easy reach of the drill. Wells drilled to 3,500 and 4,000 feet would penetrate far into the Paleozoic over a great part of the area.

A large number of wells drilled in this area have reported oil and gas showings from Cretaceous sands, and under favorable structural conditions oil and gas in commercial quantities may be produced from the Cretaceous. This does not seem impossible since El Dorado, Smackover, Stevens and most of the fields of northern Louisiana are producing oil and gas from rocks of Cretaceous age.

PREFERS SALT WATER TO OIL

FORT STOCKTON, Tex., Apr. 16.—Frank Perry has an oil well and a salt water well on his ranch, 50 miles east of Fort Stockton, and he says the salt well brings in 10 times as much revenue as the oil well. The well produces about 40 tons of salt a month which finds ready sale among ranchmen for livestock because of its medicinal qualities.

NEWS FOR PETROLEUM REFINERS

Cities Service Co. Given Ten Days to Submit Plan

United States District Judge James has accepted supervision of the plan for the sale of the Richfield Oil Co. properties to the Standard Oil Co. of California but will withhold action for 10 days in which time Cities Service Co. is expected to submit a plan for reorganization of Richfield as an operating unit. Thus far the committees of smaller bondholders, and stockholders in both the Richfield and Pan American Petroleum Co. have acted favorably toward the plan outlined by Standard in which it is understood the provision is made for eventually shutting down the Richfield plants.

In accepting supervision of the plan, the court reserved the right to determine the adequacy of the amount received for the properties when sold. He also reserved the right to determine, when the question arises, whether the division to be made between bondholders and creditors is fair. It was generally believed that the Cities Service Co. will present a definite statement of its plans before the 10-day stay period has elapsed.

Shortly after Judge James' memorandum was filed Attorney Frederick W. Williamson, counsel for Cities Service, said:

"To our knowledge, this is the first judicial determination of the phases of the Federal Securities Act which cover a reorganization. The act, ever since its passage, has been criticised because of its indefiniteness in the provisions regarding reorganizations. The memorandum clarifies the situation and will enable us to determine our course of procedure in view of the clarification."

Judge James said in his memorandum:

"I determine, first, that the plan submitted is in its form and effect a reorganization of the companies concerned, within the meaning of the Federal Securities Act and bona fide such. The court accepts supervision of that plan, this with the reservation that if the bid, made under the plan at the sale of the properties, is returned as apparently the best bid, full right shall rest with the court, on confirmation proceedings, to determine whether the return is adequate at the time, and commensurate with the fair values of the properties, all conditions considered."

Judge James' reservations were taken to indicate that the several distribution percentages described in the plan might not necessarily continue in their present form. Different bondholders' committees of Richfield and Pan American, both under Federal receivership, and unsecured creditors of Richfield, fathered the reorganization plan. Under this plan the Standard Oil Co. is to purchase the assets of both companies for $23,500,000. The Cities Service, a large bondholder and shareholder of both concerns, is not favorable to the plan, contending the real value of the companies approximated $65,000,000.

In another part of the memorandum, Judge James said:

"Promulgation of the proposed plan will give the bondholders and creditors who have not already placed their interests in the possession of the committee, an opportunity to determine whether they will be satisfied with the returns to come to them. If the majority consents to the plan, then the reorganization committee will be enabled to submit a bid on that basis at the formal sale of the properties. It will be open to any other bidder to submit a better offer, in which case the bid will be set aside, and the beneficiaries will reap the benefit of the larger return.

"Further, any new reorganization plan, which shall be proposed by either party, shall be submitted both to the reorganization committee and the court, and before such plan is accepted or rejected, the committee shall have the approval of the court thereon."

REFINERY PAY ROLLS HIGHER

According to the Department of Labor, refineries increased the number of men on the pay roll 17.9 per cent in February of this year above the number on the same month last year. Money paid out in wages and salaries by the reporting refining companies increased 14.5 per cent for the same period.

A small improvement in both employment and pay roll totals were also shown during February over the January figures.

N.P.A. TAX GROUP MEETING

On April 20, at 2 o'clock, in conjunction with the semiannual meeting of the National Petroleum Association, there will be a group meeting of those interested in Federal oil and gasoline taxes, for the particular purpose of discussing appropriate regulations for the administration of the oil and gasoline taxes as effected by the Revenue Act of 1934.

The matter of preparation of sound regulations under the new law is one of very great importance and we hope that every member company will be represented at this group meeting.

TAXMAN INSTALLATION

Petroleum Engineering, Inc., has completed construction of a combination vapor recovery, stabilizing and debutanizing plant for J. J. & M. Taxman Refining Co. at Wichita Falls, Tex. The plant is designed for the processing of 800 bbls. of P.D. and for recovery of gasoline from approximately 1,000,000 cubic feet of uncondensed cracking and refinery vapors.

Indiana Standard Sees Better Prices Ahead

Salesmen, department heads, station supervisors and other employes of the Standard Oil Co. (Indiana) attended the annual sales conference of the Missouri and Kansas divisions of the company at the Hotel Muehlebach in the past week.

Five officers from Chicago addressed the men, including Amos Ball, general manager; H. A. Lewis, assistant general manager; A. N. Steel, manager of advertising; J. J. Babb, manager of retail sales; and J. W. Curry, head of the industrial relations division.

"As the automotive industry is eternally progressing," Mr. Ball said, "the oil industry is keeping pace with the development of better fuels and lubricants."

Mr. Ball mentioned the gain in the sale of industrial lubricants in recent months, as an index to reviving industrial activity. With the demand for motor fuel remaining strong through the winter months, oil companies should be able to enter the season of their heaviest sales with prices firmer than last year.

As an indication of the company's support of the NRA, Mr. Ball cited that 5,300 new employes had been added to the company payrolls in 1933. Through reorganizations and other factors, the company's personnel was 45,317 at the end of 1933, compared with 34,346 in 1932, he said.

"Whether definite improvement can be managed as quickly as hoped for, the chances of improvement in the long pull are growing stronger," he said. "While there is an excess supply of crude oil today, there may be a scarcity in only a few years. It is now several years since any great flush field has been discovered."

NEW REFINERY OPENED

CALGARY, Alberta, Apr. 14. — The new refining plant of Federated Distributors Syndicate, Ltd., at Midnapore, Alberta, has started operating. The plant is capable of handling from 350 to 400 bbls. of crude daily, and manufactures gasoline, kerosene, distillate and tractor fuels. F. R. Rogers is manager.

Foster Wheeler Issues Statement on Withdrawal

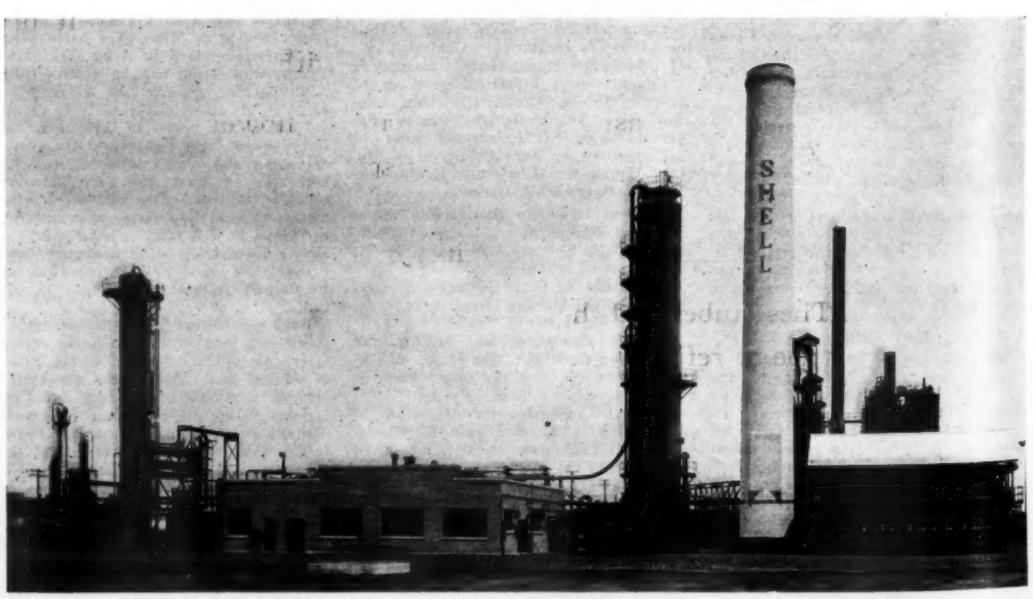
NEW YORK, Apr. 17.—The Foster Wheeler Corp. today officially announced its complete withdrawal from the Petroleum Distillation Corp. Under the withdrawal agreement the original purchasers of equipment constructed or contracted for by the Foster Wheeler Corp. prior to December 30, 1933, are protected against claims for infringement of distillation patents issued on or before December 31, 1933, and owned or controlled by the Atlantic Refining, Standard Oil Co. (Indiana), Standard Oil Co. of New Jersey or their controlled subsidiaries. The latter companies organized the Petroleum Distillation Corp. in 1932 for the purpose of pooling and licensing certain patents concerned with refinery processing. In return for such protection Foster Wheeler Corp. has granted to the Petroleum Distillation Corp. nonexclusive licensing rights under Foster Wheeler distillation patents issued on or prior to December 31, 1933, and without accounting to Foster Wheeler.

All stock formerly held by Foster Wheeler Corp. in Petroleum Distillation Corp. has been reassigned to the latter without other consideration and the agreement whereby Foster Wheeler Corp. was licensing agent for Petroleum Distillation Corp. has been terminated.

TRACTOR FUEL SPECIFICATIONS

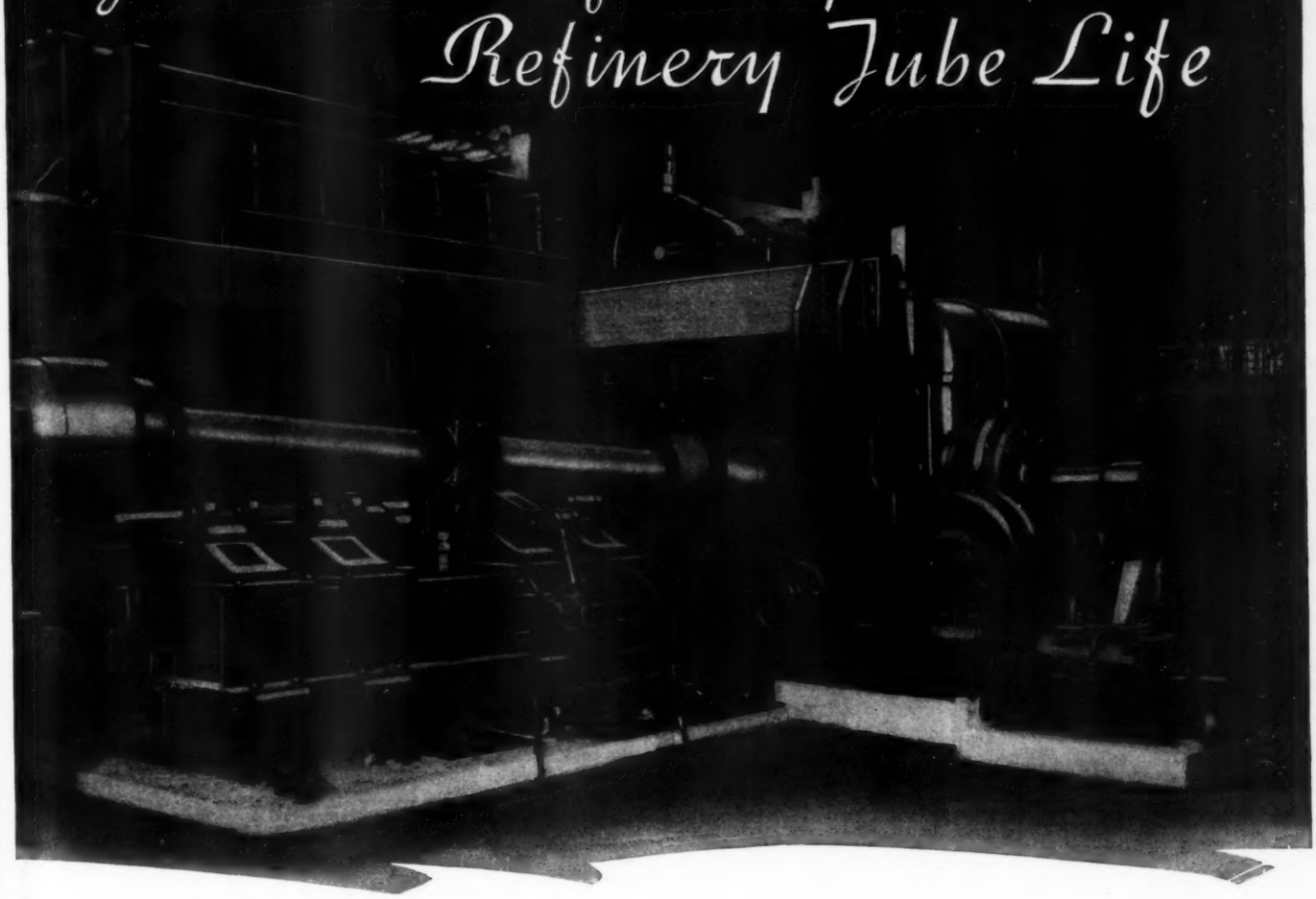
The Western Petroleum Refiners Association passed a resolution at its annual meeting in Excelsior Springs, April 5 and 6, setting out specifications for tractor fuel for use of its members and one point on the distillation range was incorrectly reported as 95 per cent distilling at 465° F. The correct specification requires a minimum of 90 per cent at 465° F.

One of Canada's Modern Petroleum Refineries



General view of cracking and reforming equipment at the new Shell Oil Co. of Canada, Ltd. refinery in Montreal

The Source of Longer Refinery Tube Life



This photograph was made in the great Timken steel plants. It shows some of the modern alloy steel and tube making equipment engaged in producing Timken refinery tubes. Millions of dollars are invested in electric furnaces, rolling mills, seamless tube mills and the vast amount of incidental equipment that is needed in connection with their operation.

Behind this vast array of mechanism, however, is another picture. A picture of metallurgical knowledge; of scientific supervision; and ceaseless vigilance. A picture of human dominance and determination, bending machinery to its will in the production of refinery tubes that serve longer and more economically.

These tubes and the savings they represent are available to you now for every type of refinery service.

THE TIMKEN STEEL AND TUBE COMPANY, CANTON, OHIO

District Offices or Representation in the following cities: Detroit Chicago New York Los Angeles Boston Philadelphia Houston Buffalo Rochester Syracuse Tulsa Cleveland Erie *World's Largest Producer of Electric Furnace Steel*

TIMKEN STEEL TUBES

ELECTRIC FURNACE AND OPEN HEARTH - ALL STANDARD AND SPECIAL ANALYSES

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement except as otherwise noted

The following quotations are exclusive of the Federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasolines

OKLAHOMA (Group 3)—	Apr. 17		Apr. 10	
U. S. Motor grades:				
Below 60 octane	.04	.04⅛	.03⅝	.03⅞
60-64.9 octane	.04½	.04⅝	.04¼	.04½
65-70 octane	.04¾	.04⅞	.04½	.04¾
60-62 400 grades:				
Below 60 octane	.04⅛	.04¼	.03¾	.03⅞
60-64.9 octane	.04⅝	.04¾	.04⅜	.04½
65-70 octane	.04⅞	.05	.04⅝	.04¾
64-66 375	.04¼	.04⅜	.04⅛	.04¼
68-70 360	.04⅜	.04½	.04¼	.04½
NORTH TEXAS—				
U. S. Motor grades:				
Below 60 octane	.03⅞	.04	.03⅝	.03⅞
60-64.9 octane	.04½	.04⅝	.04¼	.04½
65-70 octane	.04⅝	.04¾	.04½	.04¾
60-62 400	.04	.04⅛	.03¾	.03⅞
64-66 375	.04¼	.04⅜	.04⅛	.04¼
68-70 360	.04⅜	.04½	.04¼	.04½
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
U. S. Motor grades:				
Below 60 octane	.04½		.04¼	
60-64.9 octane	.05¼		.05	.05¼
65-70 octane	.05½		.05⅜	
60-62 400	.04½		.04¼	
ARKANSAS (Ark., No. La. & Miss. del.)—				
U. S. Motor grades:				
Below 60 octane	.04⅜		.04⅛	
60-64.9 octane	.05⅛		.04⅞	
65-70 octane	.05½		.05¼	
CHICAGO (based on Oklahoma Group 3)—				
U. S. Motor grades:				
Below 60 octane	.04	.04¼	.03¾	.03⅞
60-64.9 octane	.04¾	.05	.04½	.04⅝
65-70 octane	.05	.05¼	.04⅞	.05
60-62 400	.04	.04¼	.03¾	.03⅞
64-66 375	.04¼	.04½	.04¼	.04⅝
68-70 360	.04½	.04¾	.04½	.04⅝
Aviation fighting grade	.05¼	.05⅜	.05⅛	.05¼
PENNSYLVANIA (inland refineries)—				
58-60 U. S. Motor:				
Below 60 octane	.05	.05¼	.05	.05⅛
60-64.9 octane	.06⅛	.06¼	.06¼	.06½
65-70 octane	.06⅜	.06⅝	.06⅝	.06¾
68-70 350	.06¼	.06½	.06¼	.06½
CALIFORNIA (domestic movement)—				
54-58 U. S. Motor	.04¼	.05¼	.04	.05
58-60 400	.05	.06	.04½	.05½
EAST COAST—				
U. S. Motor, below 60 octane:				
New York	.05½	.05¾	.05½	.05¾
Baltimore	.05½	.05¾	.05½	.05¾
U. S. Motor, 60-64 octane:				
New York (Bayonne)	.05¾	.06	.05¾	
Philadelphia	.06	.06¼	.05¾	.06
Boston	.06	.06¼	.06	.06¼
Baltimore	.05¾		.05¾	
Charleston, S. C.	.05¾		.05¾	
U. S. Motor, 65 and above:				
New York (Bayonne)	.06	.06¼	.06	
Philadelphia	.06¼	.06½	.06	.06¼
Boston	.06¼	.06½	.06¼	.06½
Baltimore	.06	.06¼	.06	.06¼
Charleston, S. C.	.06	.06¼	.06	.06¼
GULF COAST (domestic)—				
U. S. Motor:				
Below 60 octane	.05½	.05¾	.04½	.04¾
60-64.9 octane	.05¾	.06	.04¾	.05
65 octane and higher	.06	.06¼	.05⅞	.05⅞

Naphthas

	Apr. 17		Apr. 10	
PENNSYLVANIA (inland refineries)—				
50-54 430-450 (blending)	.04⅜	.04⅝	.04½	.04¾
CHICAGO (based on Oklahoma Group 3)—				
50-52 450 (blending)	.03¾	.04	.03½	.03¾
Cleaners' naphtha, 56-58 gr., 200 i.b.p.-330 e.p.	.06¼	.06½	.06	.06½
Lacquer diluent, 180 i.b.p.-250 e.p.	.07¼	.07½	.07	.07½
Lacquer diluent, 140 i.b.p.-200 e.p.	.08¼	.08½	.08	.08½
Rubber solvent, 68-70 gr., 100 i.b.p.-300 e.p.	.06¼	.06½	.06	.06½
Stoddard solvent, 300 i.b.p.-410 e.p., over 83° flash	.05¾	.06	.05½	.06
Pet. thinner, 290-300 i.b.p.-415 e.p., over 83° flash	.05¾	.06	.05½	.05¾
V.M.&P. naphtha, 58-68 gr., 190-200 i.b.p.-330 e.p.	.06¼	.06½	.06	.06½
Petroleum spirits	.05	.05¼	.05	.05¼

Natural Gasolines

OKLAHOMA (Group 3)—	Apr. 17		Apr. 10	
Grade 26-70	.02½		.01⅝	
Grade 18-55	.03	.03⅛	.02	.02⅛
Low vapor pressure grades:				
15 lb. v.p. (max.)	.03⅜	.03½	.02⅜	.02½
11 lb. v.p. (max.)	.04	.04¼	.03¼	
NORTH TEXAS—				
Grade 26-70	.02¼		.01⅜	.01½
Grade 18-55	.02⅞	.03	.02	.02⅛
Low vapor pressure grades:				
15 lb. v.p. (max.)	.03¼	.03⅜	.02¼	.02⅜
11 lb. v.p. (max.)	.03¾	.04	.03	.03⅛
NORTH LOUISIANA—				
Grade 26-70	02⅞		.01⅞	.02
CALIFORNIA—				
75-78 375	.04½	.05	.04½	.05

Kerosenes

(All kerosenes water white)

OKLAHOMA (Group 3)—	Apr. 17		Apr. 10	
41-43	.03⅝	.03¾	.03⅜	.03⅝
42-44	.03¾	.03⅞	.03½	.03¾
NORTH TEXAS—				
40-41	.03⅜	.03½	.03⅛	.03¼
41-43	.03½	.03⅝	.03¼	.03⅜
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
41-43	.03¾		.03¾	
ARKANSAS (Ark., No. La. & Miss. del.)—				
41-43	.03¾		.03¾	
PENNSYLVANIA (inland refineries)—				
45	.04½	.04¾	.04¾	.05
46	.04⅝	.05	.04⅞	.05¼
47	.05	.05¼	.05⅛	.05¼
CHICAGO (based on Oklahoma Group 3)—				
41-43	.03¾	.03⅞	.03⅝	.03¾
42-44	.03¾	.04	.03¾	.03⅞
CALIFORNIA (Pacific Coast consumption)—				
38-40 high burning test	.04¼	.04¾	.04¼	.04¾
NEW YORK (Bayonne, N. J.)—				
41-43	.05¼	.05½	.05½	.05¾
GULF COAST (domestic)—				
41-43	.04¾	.05	.04¼	.04½

Petroleum Coke

Prices per ton f.o.b. refineries in Chicago area. (Refineries will absorb freight to 80 cents a ton)

	Apr. 17		Apr. 10	
Breeze (screenings)	5.00		5.00	
Pile run	5.00		5.00	
Direct from still	6.00		6.00	
Lump and egg	7.00	8.00	7.50	8.00

Furnace Oils and Tractor Fuels

(Zero cold test under 190° flash and good odor)

OKLAHOMA (Group 3)—	Apr. 17		Apr. 10	
32-36 straw	.02⅝	.02¾	.02⅝	.02¾
36-38 straw	.02⅝	.02¾	.02⅝	.02¾
38-40 straw	.02¾	.02⅞	.02¾	.02⅞
39-41 prime white	.02⅞	.03	.02⅞	.03
NORTH TEXAS—				
38-40 straw	.02¾	.03	.02¾	.03
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
36-40 furnace oil	.03		.03	
ARKANSAS (Ark., No. La. & Miss. del.)—				
32-36 furnace oil	.02¾	.02⅞	.02¾	.02⅞
CHICAGO (based on Oklahoma Group 3)—				
32-36 straw	.02¾	.03	.02⅝	.02⅞
38-40 straw	.02⅞	.03	.02¾	.02⅞
38-40 prime white	.03⅛	.03¼	.03	.03⅛
PENNSYLVANIA (inland refineries)—				
40-41 prime white	.04⅜		.04½	.04⅝
NEW YORK (Bayonne, N. J.)—				
36-40 (No. 1 grade)	.05¼	.05½	.05½	.05¾
32-36 (No. 2 grade)	.04½	.04¾	.04½	.04¾
21 industrial (No. 4 grade)	.04	.04¼	.04	.04¼

Gas Oil, Diesel Oil and Fuel Oil

(Gas oil per gallon; Diesel and fuel oils per barrel)

OKLAHOMA (Group 3)—	Apr. 17		Apr. 10	
32-36 gas oil cracking stock	.02⅛	.02¼	.01⅞	.02⅛
U.G.I. gas oil	.02⅛		.02⅛	
32-36, zero to 15 gas oil	.02⅝	.02⅞	.02⅞	.03
28-30, No. 3 burner oil	1.00	1.05	1.00	1.05
28-30, zero to 10 fuel oil	.90	.95	.95	1.00
26-30, zero to 10 fuel oil	.85	.95	.85	.95
24-26 fuel oil	.75	.80	.70	.75
20-22 fuel oil	.57½	.65	.57½	.65
Below 16 fuel oil	.55	.60	.55	.60
NORTH TEXAS—				
32-36 gas oil, industrial	.02		.02	
22-26 fuel oil	.57½	.62½	.57½	.62½
Below 20 fuel oil	.47½	.50	.47½	.50
NORTH LOUISIANA (Ark., No. La. & Miss. del.)—				
32-36 gas oil, zero	.03		.03	
14-16 fuel oil	.70		.70	
ARKANSAS (Ark., No. La. & Miss. del.)—				
30-32 gas oil, zero	.02¾		.02⅞	
32-36 gas oil	.03		.03	
14-16 fuel oil	.70		.70	
CHICAGO (based on Oklahoma Group 3)—				
32-36 gas oil, industrial	.02	.02⅛	.01⅞	.02
28-30 zero to 10, fuel oil	.95	1.00	.95	1.02½
26-28 zero to 10, fuel oil	.85	.90	.85	.90
22-26 zero to 10, fuel oil	.75	.80	.75	.80
18-22 zero to 10, fuel oil	.62½	.65	.60	.65
Below 18 fuel oil	.57½	.60	.50	.55

Note: Fuel oils of more than 40 cold test generally 5 to 15 cents per barrel less in all these areas.

PENNSYLVANIA (inland refineries)—				
36-40	.03¾	.03⅞	.03⅞	.04
CALIFORNIA—				
30-34 gas oil per bbl.	1.00	1.10	.90	1.00
27 plus Diesel	1.00	1.10	.90	1.00
15-19 bunker (at tidewater)	.60	.70	.60	.70
15-19 (cargo lots)	.55	.60	.55	.60
15-19 (tank cars)	.50	.65	.45	.60
GULF COAST—				
28-30 gas oil	.03½	.03¾	.03¼	.03½
28-30 Diesel (bunkers)	1.80		1.80	
Bunker C (bulk cargoes)	.95	1.00	.95	1.00
Bunker C (bunkers)	1.15		1.15	
NEW YORK (Bayonne, N. J.)—				
28 plus, gas oil	.04¼	.04½	.04¼	.04½
28-30 Diesel (lighterage 6½ cents per bbl.)	1.95		1.95	
28-30 Diesel (tank cars)	.04½		.04½	
*Bunker C (to ocean-going ships in N. Y. harbor)	1.30		1.30	

*Lighterage charge 5 cents per barrel additional.

Neutral Oils

(Vis at 100° F. except Pennsylvania, and color N.P.A.)

OKLAHOMA (Group 3)—	Apr. 17	Apr. 10
Zero to 10 Cold Test:		
150-3	.08¾	.08
180-3	.10	.09¼
180-4	.09½	.09
200-3	.10½	.09¾
200-4	.10	.09½
240-3	.12½	.11¾
240-4	.12	.11½
280-3	.13½	.12¾
280-4	.12¾	.12¼
300-3½	.14	.13¼
400-4	.16	.15½
100-2 paraffin oil	.06½	.05¾
15-30 Cold Test:		
200-3	.09½	.08¾
200-4	.09	.08½
240-3	.11½	.10¾
240-4	.11	.10½
280-3	.12½	.11¾
280-4	.11¾	.11½
GULF COAST—		
Pale Oils:		
200-3	.07½	.07½
300-3	.08 .08¼	.08 .08¼
500-3½	.09 .09¼	.09 .09¼
750-3½	.09½ .09¾	.09¾ .10
1,200-3½	.10 .10¼	.10¼ .10½
2,000-4	.10¼ .10½	.10¾
Red Oils:		
200-5-6	.06½	.06½
300-5-6	.07 .07¼	.07 .07¼
500-5-6	.08 .08¼	.08 .08¼
750	.08¼ .08¾	.08¾ .09
1,200-5-6	.09 .09¼	.09¼ .10
2,000-6½ plus	.09¼ .09½	.09¾ .10½
CALIFORNIA—		
Pale Oils:		
100-2½-3	.23 .25	.23 .25
200-2½-3	.23 .25	.23 .25
300-3-3½	.23 .25	.23 .25
350-3-4	.23 .25	.23 .25
400-3-4	.23 .25	.23 .25
450-3-4	.23 .25	.23 .25
550-3-4	.23 .25	.23 .25
600-3-4	.23 .25	.23 .25
Red Oils:		
200-4-5	.23 .25	.23 .25
300-5-6	.23 .25	.23 .25
350-5-6	.23 .25	.23 .25
400-5-6	.23 .25	.23 .25
450-5-6	.23 .25	.23 .25

500-5-6	.23	.25	.23	.25
600-5-6½	.23	.25	.23	.25
700-6½ plus	.23	.25	.23	.25
750-6½ plus	.23	.25	.23	.25
900-6½ plus	.23	.25	.23	.25
PENNSYLVANIA—				
150 vis. at 70° F., 3 color; 400-405 flash:				
Zero pour test	.23½	.24	.23½	.24
10 pour test	.22½	.23	.22½	.23
15 pour test	.22	.22½	.22	.22½
25 pour test	.21	.21½	.21	.21½
180 vis. at 70° F., 3 color:				
25 pour test	.25	.25½	.25	.25½
200 vis. at 70° F., 3 color:				
Zero pour test	.30	.30½	.30	.30½
10 pour test	.28½	.29	.28½	.29
15 pour test	.28	.28½	.28	.28½
25 pour test	.27½	.28	.27½	.28

Bright and Steam Refined Stocks

OKLAHOMA (Group 3)—	Apr. 17		Apr. 10	
Bright Stocks:				
190-200 D	.26½		.26½	
150-160 D, 0-10	.23¾		.23¾	
150-160 D, 10-25	.23¼		.23¼	
150-160 25-40	.22¾		.22¾	
150-160 E	.22¾		.22¾	
Steam refined:				
630 light green (treated)	.15		.15	
600 light green (untreated)	.07	.09	.07	.09
600 dark green (untreated)	.05	.07	.05	.07
PENNSYLVANIA—				
600 S.R.	.18½	.19	.18½	.19
650 S.R.	.21	.21½	.21	.21½
600 Pennsylvania flash	.22	.22½	.22	.22½
630 flash	.26½	.27	.26½	.27
600 Warren E filtered	.21½	.22	.21½	.22
Pennsylvania Grade bright stocks:				
No. 8 color, 145-50 at 210; 540-550 flash:				
10 pour test	.29	.29½	.29	.29½
15 pour test	.28½	.29	.28½	.29
20 pour test	.28	.28½	.28	.28½
25 pour test	.27½	.28	.27½	.28

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—	Apr. 17	Apr. 10
124-126 white crude scale	.03⅝ .03¾	.03⅝ .03¾
PENNSYLVANIA—		
122-124	.0405	.0405
124-126	.04⅛	.04⅛
NEW YORK HARBOR—		
Wax (a.m.p.) in bags fully refined:		
120-122	.0420 .0430	.0420 .0430
123-125	.0435 .0460	.0435 .0460
125-127	.0445 .0470	.0445 .0470
128-130	.0480 .0495	.0480 .0495
130-132	.05 .0510	.05 .0510
133-135	.0545 .0570	.0545 .0570
135-137	.0570 .0595	.0570 .0595
124-126 crude scale	.03¾ .04	.03¾ .04
Petrolatum in barrels in carload lots:		
Dark green	.01⅞ .02	.01⅞ .02
Amber	.02⅞ .03	.02⅞ .03
Extra amber	.03⅛ .03¼	.03⅛ .03¼
Lily white	.06¾ .06⅞	.06¾ .06⅞
Snow white	.07¾ .07⅞	.07¾ .07⅞
Cream	.05⅝ .05¾	.05⅝ .05¾
CHICAGO (f.o.b. switching district)*—		
122-124 wax	.0467 .0475	.0465 .0475
125-127 wax	.0490 .0500	.0490 .0500
127-129 wax	.0505 .0515	.0505 .0515
130-132 wax	.0565 .0575	.0565 .0575
132-134 wax	.0590 .0600	.0590 .0600

*Cents per pound on carlot orders in burlap bags of 225 lbs. approx. Add 3° F. a.m.p.

Export Prices

GASOLINE

GULF COAST—	Apr. 17	Apr. 10
U. S. Motor	.04⅛ .04¼	.04⅛ .04¼
60-62 400	.04¼ .04⅜	.04¼ .04⅜
61-63 390	.04⅜ .04½	.04⅜ .04½
64-66 375	.04⅝ .04¾	.04⅝ .04¾
LOS ANGELES, CALIF.—		
U. S. Motor grades:		
53-55 octane	.04 .04¼	.04 .04¼
55-65 octane	.04¼ .04½	.04¼ .04½
65-67 octane	.04½ .04¾	.04½ .04¾
67-69 octane	.04¾ .05	.04¾ .05
Above 69 octane	.05 .05¼	.05 .05¼
58-60 400 endpoint	.04¾ .05½	.04¾ .05½

KEROSENE

GULF COAST—				
41-43 prime white	.04⅛	.04¼	.04⅛	.04¼
41-43 water white	.04¼	.04⅜	.04¼	.04⅜
44 water white	.04⅜	.04½	.04⅜	.04½
LOS ANGELES, CALIF.—				
41-43 water white	.04¼	.04½	.04¼	.04½

LUBRICANTS

NEW YORK (f.a.s. in bbls.)—				
Cylinder Stocks:				
600 Warren E	.28	.29	.28	.29
600 S.R. unfiltered	.26	.26½	.26	.26½
650 S.R. unfiltered	.28	.28½	.28	.28½
600 flash S.R.	.29	.29½	.29	.29½
630 flash S.R.	.33	.33½	.33	.33½
Bright stock, 8 color	.34	.35	.34½	.35½
Bright stock, 6½ plus, dil.	.33	.34	.33	.34

NEUTRAL OILS

200-3 color	.34	.35	.34	.35
150-3 color	.29	.30	.29	.30

PARAFFIN WAX (Fully Refined)

NEW YORK (prices per pound)—				
120-122 a.m.p.	.0405	.04¼	.0405	.04¼
123-125 a.m.p.	.0430	.0455	.0430	.0455
125-127 a.m.p.	.0440	.0465	.0440	.0465
128-130 a.m.p.	.04¾	.0490	.04¾	.0490
130-132 a.m.p.	.0495	.0505	.0495	.0505
133-135 a.m.p.	.0540	.0565	.0540	.0565
135-137 a.m.p.	.0565	.0590	.0565	.0590

Crude Oil Gravity Table

Degrees gravity—	1 Oklahoma and Kansas	2 North Texas, Central Texas and East Central Texas	3 North Louisiana and Arkansas	4 Jirby County, Texas	5 Carson, Hutchinson, and Moore Counties, Texas	6 Conroe, Texas	7 Salt Creek, Wyo.	8 Gulf Coast, Texas, and Louisiana	9 Gulf Coast, Texas, and Louisiana	10 Cotton Valley, Louisiana
Below 20	....	....	....	....	....	....	....	$.82	$.82	....
20-20.9	....	....	....	....	....	....	....	.84	.84	....
21-21.9	....	....	....	....	....	....	....	.86	.86	....
22-22.9	....	....	....	....	....	....	....	.88	.88	....
23-23.9	....	....	....	....	....	....	....	.90	.90	....
24-24.9	....	....	....	....	....	....	....	.92	.92	....
Below 25	*$.76	....	....	....	....	....	....	....	....	$.70
25-25.9	*.78	....	....	....	....	....	....	.94	.94	.72
26-26.9	*.80	....	....	....	....	....	....	.96	.96	.74
27-27.9	*.82	....	....	....	....	....	....	.98	.98	.76
28-28.9	*.84	....	....	....	....	....	....	1.00	1.00	.78
Below 29	.84	$.79	$.79	....	....	....	$.84	....	....	....
29-29.9	.86	.81	.81	....	....	....	.86	1.02	1.02	.80
30-30.9	.88	.83	.83	....	....	....	.88	1.04	1.04	.82
31-31.9	.90	.85	.85	....	....	....	.90	1.06	1.05	.84
32-32.9	.92	.87	.87	....	....	....	.92	1.08	1.06	.86
33-33.9	.94	.89	.89	....	....	....	.94	1.10	1.07	.88
34-34.9	.96	.91	.91	....	....	....	.96	1.12	1.08	.90
Below 35	....	....	....	$.79	$.69	....	....	....	....	....
35-35.9	.98	.93	.93	.81	.71	$1.09	.98	1.12	1.09	.92
36-36.9	1.00	.95	.95	.83	.73	1.11	1.00	1.12	1.10	.94
37-37.9	1.02	.97	.97	.85	.75	1.13	1.02	1.12	1.11	.96
38-38.9	1.04	.99	.99	.87	.77	1.15	1.04	1.12	1.12	.98
39-39.9	1.06	1.01	1.01	.89	.79	1.17	1.06	1.12	1.13	1.00
40 and over	1.08	1.03	1.03	.91	.81	1.19	1.08	1.13	1.14	1.02

*The following companies purchasing crude oil in Kansas or Oklahoma, or both, begin their price schedules: Below 25 degrees, 76 cents; 25-25.9 degrees, 78 cents, with 2 cents added for each degree upward to 40 and over at $1.08: Carter Oil Co., Magnolia Petroleum Co., Pure Oil Co., Rock Island Refining Co., Shell Petroleum Corp., Sinclair Prairie Oil Marketing Co., Skelly Oil Co., and Wilcox Oil & Gas Co. All others begin their schedule at below 26 degrees, 84 cents, excepting Phillex Oil Co., which begins with below 31 degrees at 88 cents.

Column 1—Effective September 29, Texas Co. in Oklahoma; Stanolind Crude Oil Purchasing Co. in Kansas and Oklahoma; Anderson & Prichard, Inc., in Oklahoma; Bell Oil & Gas Co. in Oklahoma; Carter Oil Co. in Oklahoma and Kansas; Deep Rock Oil Co. in Oklahoma; Derby Oil Co. in Kansas; Globe Refining Co. in Oklahoma; Golden Rule Refining Co. in Kansas; Gypsy Oil Co. in Oklahoma and Kansas; Kanotex Refining Co. in Kansas; Magnolia Petroleum Co. in Oklahoma; Mid-Continent Petroleum Corp. in Oklahoma; National Refining Co. in Kansas and Oklahoma; Shell Petroleum Corp. in Kansas and Oklahoma; Sinclair Prairie Oil Marketing Co. in Kansas and Oklahoma; Texas Co. in Oklahoma; Tide Water Oil Co. in Oklahoma; Vickers Refining Co. in Kansas; Continental Oil Co. in Kansas and Oklahoma; Empire Pipe Line Co. in Oklahoma and Kansas; Phillex Oil Co. in Kansas and Oklahoma; Pure Oil Co. in Oklahoma; Skelly Oil Co. in Kansas. Effective September 29, by White Eagle Oil Corp. in Kansas; on October 1 by Barnsdall Refineries, Inc., in Oklahoma.

Column 2—Effective September 29, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Bell Oil & Gas Co., Continental Oil Co. Effective September 29, in the Van Pool, Van Zandt County, Pure Oil Co. posted below 29 degrees, 84 cents, with 2 cents added for each degree up to 40 and over at $1.08.

Column 3—Effective September 29, by Texas Co., Magnolia Petroleum Co., Gulf Refining Co. Effective December 22, Stanolind Oil & Gas Co. in Pine Island, Louisiana, and Marion County, Texas, posted below 29 degrees, 79 cents, with 2 cents added for each degree up to 40 and over at $1.03. Effective March 17, 1934, by Standard Oil Co. of Louisiana and Louisiana Oil Refining Co. Starting with below 25 degrees, 71 cents, adding 2 cents for each degree upward to 40 and over at $1.03.

Column 4—Effective September 29, by Texas Co., Humble Oil & Refining Co., Magnolia Petroleum Co., Sinclair Prairie Oil Marketing Co., and H. F. Wilcox Oil & Gas Co. On same day Phillex Oil Co. posted below 31 degrees, 71 cents, with 2 cents added for each degree up to 40 and over at 91 cents.

Column 5—Effective September 29, by Texas Co., Humble Oil & Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., Wilcox Oil & Gas Co., Continental Oil Co. On same day, Phillex Oil Co. posted below 31 degrees, 61 cents, with 2 cents added for each degree upward to 40 and over at 81 cents.

Column 6—Effective September 29, by Humble Oil & Refining Co. and Tide Water Oil Co., and on September 30, by Texas Co. which on September 29 had posted a schedule of $1.07 to $1.12 with a 1-cent spread on each degree.

Column 7—Effective September 29 by Stanolind Oil & Gas Co.

Column 8—Effective September 29, by Humble Oil & Refining Co., Gulf Pipe Line Co., Shell Petroleum Corp., Pure Oil Co., Sinclair Prairie Oil Marketing Co. On October 2, Magnolia Petroleum Co. posted Lockport, Louisiana: 30-30.9 degrees, 84 cents, with 2 cents added for each degree upward to 34 and over at $1.12, and in Cameron Meadows and Iowa, Louisiana: Below 20 degrees, 72 cents with 2 cents added for each degree up to 34 and over at $1.02. These prices were 2 cents higher on each degree than Magnolia prices posted on September 29. Effective September 29, Shell Petroleum Corp. posted in Iowa, Louisiana, district: Below 20 degrees, 70 cents, with 2 cents added for each degree upward to 34 degrees and over at $1; and in Black Bayou and White Castle, Louisiana: Below 20 degrees, 80 cents, with 2 cents added for each degree upward to 34 degrees and over at $1.10.

Column 9—Effective September 30, Texas Co. (On September 29, Texas Co. had posted a schedule 2 cents lower on each degree, but changed it on September 30.)

Column 10—Effective September 29, by Louisiana Oil Refining Co.

(California Crude Oil Prices on Page 55)

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas	$1.00
Stratman, Kans. (Sept. 29, 1933)	1.08
Corsicana (heavy) (June 17, 1933)*	.30
Other fields	(See gravity table)

Note—In East Texas, effective September 29, 1933, by Texas Co., Stanolind Crude Oil Purchasing Co., Humble Oil & Refining Co., Shell Petroleum Corp., Gulf Pipe Line Co., Tide Water Oil Co., Sinclair Prairie Oil Marketing Co., Magnolia Petroleum Co., Sun Oil Co., Panola Pipe Line Co., and Empire Oil & Refining Co.

*Magnolia Petroleum Co.

West Texas

Crane, Upton, Crockett, Howard, Glasscock, Mitchell (Sept. 29, 1933)	$ .70
Ector, Winkler and Pecos Counties and Lea County, New Mexico (Sept. 29, 1933)	.75
Pecos County, Yates shallow pool (Sept. 29, 1933)*	.65
Jones and Fisher Counties.	See gravity table.

Note—Effective September 29, 1933, by Humble Oil & Refining Co., Texas Co., Gulf Pipe Line Co., Shell Petroleum Corp., Magnolia Petroleum Co., and by Stanolind Oil & Gas Co. in Winkler County, Texas.

*Shell Petroleum Corp.

Gulf Coast

Grade A and Grade B specifications discontinued by leading buyers	(See gravity table)
Tomball (see note)*	$1.15
Livingston (Sept. 29, 1933)†	1.00
Cleveland (Jan. 11, 1934)	1.00
Greta (Sept. 29, 1933)	.85
Refugio, light	(See gravity table)
Refugio, heavy (Sept. 29, 1933)‡	.85
Markham and High Island	(See Gulf Coast gravity table)
Conroe	(See Conroe gravity table)

Note—Tomball, effective September 29, by Humble Oil & Refining Co., and October 2 by Magnolia Petroleum Co., and November 10 by Stanolind Oil & Gas Co.

*Greta posted by Texas Co. †Shell Petroleum Corp. ‡Refugio heavy, by Humble Oil & Refining Co. Cleveland (Liberty County), posted by Magnolia Petroleum Co.

South Central and Southwest Texas

(See note below table)

Darst Creek	$.87
Mirando	.80
Luling (Sept. 29, 1933)	.75
Pettus	1.05
Salt Flat	.87
Lytton Springs (Sept. 29, 1933)	.95
Duval County (Sept. 29, 1933)	.80
Saxet	.85

Note—Effective on September 29 by Humble Oil & Refining Co., in Darst Creek, Mirando, Pettus, Salt Flat and Saxet. Effective September 29 in Darst Creek by Gulf Pipe Line Co. and Texas Co. Effective October 3 by Magnolia Petroleum Co. Effective in Pettus and Salt Flat on September 29 by Humble Oil & Refining Co. and Gulf Pipe Line Co. Luling and Lytton Springs by Magnolia Petroleum Co. Duval County by Texas Co. Saxet, effective September 29, by Humble Oil & Refining Co. and Texas Co.

(Continued on Page 55)

TANK WAGON MARKETS

Quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, include taxes

April 17, 1934

Taxes

The gasoline quotations given in the following tables include the 1 cent Federal tax, as well as state, county and city taxes. The gasoline quoted is the regular or standard grade. In most marketing areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, sales in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank wagon, or 3 cents a gallon off retail prices, is permitted for purchases running between 3,000 and 10,000 gallons a month, and 2 cents a gallon off tank wagon, or 4 cents a gallon off retail prices, for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	15.0	17.0	6.0	10.0*
Pueblo	16.0	18.0	6.0	13.0
Grand Junction	21.5	23.5	6 0	15 0
Casper, Wyo.	18 0	20.0	5 0	11.5
Cheyenne	18.0	20.0	5.0	13 0
Butte, Mont.	21.0	23 0	5.0	17.5
Billings	21.0	23.0	6.0	16.5
Helena	22 5	24.5	6 0	17.5
Great Falls	21.5	23 5	6.0	17 5
Salt Lake, Utah	16.5	18.5	5.0	16 0
Boise, Idaho	17.5	19.5	6 0	18.0
Twin Falls	20.5	22.5	6.0	18.0
Albu'que, N. M.	19.5	21.5	*7 0	13.9

*One-cent city tax.

Effective March 1, 1934, discount to dealers with or without contract throughout Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 3½ cents.

Standard Oil Co. (Indiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago	13.8	15.8	4.0	8.0
Decatur, Ill.	16.7	18.7	4.0	10.2
E. St. Louis	16.0	18.0	4.0	9.5
Joliet	16.7	18.7	4.0	10.2
Peoria	15.2	17.2	4.0	10.2
Quincy	16.6	18.6	4.0	10.0
Davenport Ia.	16.6	18.6	4.0	10.1
Des Moines	16.8	18.8	4.0	8.0
Mason City	16 8	17.6	4.0	9.3
Sioux City	16.2	16.0	4 0	9 7
Duluth, Minn.	17.2	19.2	4.0	10.4
Mankato	16.8	18.8	4.0	9.3
Minneapolis	15.4	17.4	4 0	10 4
LaCrosse, Wis.	18.3	20.3	4.0	10.8
Green Bay	17.7	19.7	5 0	10.2
Milwaukee	17.1	17.1	5.0	9.7
Madison	17.4	19.4	5.0	9.9
Detroit, Mich.	17.0	19.0	4.0	8.5
Grand Rapids	16.7	18.7	4.0	10.2
Saginaw	17.0	19.0	4.0	10.5
Evansville, Ind.	17.7	19.7	5.0	10.0
Indianapolis	17.9	19 9	5.0	10.2
South Bend	18.2	20.2	5.0	10.5
Fargo, N. Dak.	17.9	19 9	4.0	13.1
Huron, S. Dak.	18.8	20.8	5.0	11.4
Sioux Falls	18.4	20.4	5.0	10.9
K. C., Mo.*	15.7	17.7	4.0	8 2
Springfield	15.1	17.1	3.5	9.1
St. Louis	12.5	14.5	3.5	7.5
St. Joseph*	15.3	17.3	4 0	8 3
Wichita, Kans.	14.6	16.6	4 0	8.1
Bartlesville, Ok.	16.0	18.5	5.0	8.5

*State tax 2 cents, 1-cent city tax and 1-cent Federal tax.

Discounts to dealers, effective March 1, 1934: Undivided accounts, 4 cents a gallon on Red Crown Ethyl and Standard Red Crown, divided accounts, 3½ cents a gallon on Red Crown Ethyl and Standard Red Crown.

Stanolex Furnace Oil in Chicago

Effective March 5, 1934, prices f.o.b. Chicago, tank wagon prices: No. 1 (36-40 lt. stw. zero), under 100 gallons, 8¼ cents; No. 2 (20-34 stw. zero), 7⅝ cents; No. 3 (22-26 zero), 7¼ cents; No. 4 under 300 gallons (12-16 zero), 5¾ cents; viscosity of No. 4, 90-115 at 100° F.; No. 5 under 300 gallons, 5⅛ cents; for deliveries of 100 gallons or more deduct 1 cent.

Naphtha

	Tank wagon*
Oleum spirits	16 9
V.M.&P. naphtha	18.0
Cleaners' naphtha	18.0
Stanisol	18 0

*Prices include 3-cent Illinois tax, but not 1-cent Federal tax.

Prices f.o.b. Chicago September 13, 1933. Each of above prices subject to discount of 1 cent per gallon for 150-gallon lots if covered by contracts.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	19.5	21.5	7.0	14.5
Augusta	19.5	21 5	7.0	14 5
Macon	19 5	21.5	7 0	14.5
Savannah	19 5	21.5	7 0	14.0
Birm'ham, Ala.	21.5	23.5	8 0	14.0
Mobile	20 5	22.5	8.0	14.0
Montgomery	21 0	23 0	8 0	15 0
Jackson, Miss.	18 5	20.5	7.0	14.0
Vicksburg	16.5	18.5	7 0	14.0
Jack'ville, Fla.	19.5	21.5	8.0	12.5
Miami	19.5	21.5	8.0	13.5
Pensacola	19.0	21.0	8.0	13.5
Tampa	19.5	21.5	8.0	12.5
Lexington, Ky.	18.5	20.5	6 0	11.5
Covington	17.5	19.5	6.0	11.5
Louisville	17.5	19.5	6.0	11.5
Paducah	13.5	15.5	6.0	11.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city and county tax of 2 cents on gasoline and one-half cent on kerosene. Kerosene prices in Georgia and Mississippi include 1 cent state tax; in Alabama, an inspection fee of one-half cent on kerosene and one-fortieth cent on gasoline; in Florida an inspection fee of one-eighth cent on kerosene and gasoline. To Pensacola, Mobile and Birmingham state taxes on gasoline add 1 cent city tax.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	17.0	19.0	5.0	6 0
Fort Worth	17.0	19.0	5.0	6.0
Houston	17.0	19.0	5.0	8 5
San Antonio	17.0	19.0	5.0	8.5
El Paso	17.5	19.5	5.0	11.0
Muskogee, Ok.	16.0	18.0	5.0	7.5
Okla. City	16 0	18.0	5.0	8.5
Tulsa	16.0	18.0	5.0	8.5
Ft. Smith, Ark.	14.5	16.5	5.0	8.0
Little Rock	16.5	18.5	7.5	9 0
Texarkana	15.0	17.0	5.0	7.0

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atl'tic City, N.J.	17.5	16.0	4.0	10.0
Newark	16.8	16.3	4.0	9.5
Annapolis, Md.	18.1	17.6	5.0	10.0
Baltimore	17.6	17.1	5.0	10.0
Cumberland	19.1	18.5	5.0	12.7
Wash'g'n, D. C.	15.8	15.3	3.0	11.5
Danville, Va.	20.2	19.7	6.0	12.9
Norfolk	18.7	14.5	6.0	11.3
Petersburg	19.5	19.0	6.0	11.4
Richmond	19.1	15.6	6.0	11.7
Roanoke	20.3	15.4	6 0	12 9
Charls'n, W.Va.	18.5	18.0	5.0	12.6
Parkersburg	17.8	15.9	5.0	11.2
Wheeling	18.5	18.0	5.0	12.2
Charlotte, N. C.	21.9	21.0	7.0	13.5
Hickory	22.2	21.0	7 0	13.7
Mt. Airy	22.2	21.7	7.0	13.8
Raleigh	21.7	21.0	7.0	13.3
Salisbury	22.0	20.0	7.0	13 6
Charleston, S.C.	19.7	19.2	7.0	11 3
Columbia	21.5	21.0	7.0	13 2
Spartanburg	21.9	21.0	7.0	13.5

Note—Dealer contracts are written at 2½ cents above the posted tank car price, less a voluntary allowance of one-half cent per gallon. This affects all points. Kerosene 1 cent off tank wagon for 25 gallons or more under contract except New Jersey and Baltimore, Md.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Ohio points	16.5	17.5	5.0	*12.5

*Includes state tax of 1 cent, effective July 22

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	17.3	19.3	5.0	9.0
McCook	18.4	18.4	5.0	8.0
Norfolk	17.8	19.8	6.0	8.5
North Platte	18.8	20.8	5.0	9.0
Scottabluff	18.8	19.3	5.0	11.0

Note: Discount to dealers, including any rentals under lease and agency agreements: Undivided accounts, Standard Red Crown and Red Crown Ethyl Gasoline 4 cents, Reliance (third brand) 3 cents, under service station price. Divided accounts, Standard Red Crown Ethyl Gasoline 3½ cents, Reliance (third brand) 2½ cents, under service station price. Discounts to consumers covered only by form CD-1, official commercial consumer contract.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N. Orleans, La.	19.3	14.5	*7.0	†12.0
Baton Rouge	18.7	18.2	6.0	†12.0
Alexandria	19.6	19.1	*7.0	†10.0
Lafayette	19.8	19.3	*7.0	†12.0
Lake Charles	19.7	19.2	*7.0	†12.0
Shreveport	17.5	17.0	6 0	†12.0
Knoxville, Tenn.	23.2	22.7	8.0	13.0
Memphis	21.6	21 0	8.0	9.5
Chattanooga	23 0	22.5	8 0	11.0
Nashville	22.5	16.5	8.0	11 0
Bristol	23.0	19.0	8.0	14 0

*Includes city tax of 1 cent. †Louisiana kerosene prices include 1-cent state tax.

Note—Dealer contracts are written at 2½ cents above the posted tank car price.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA*

	Gasoline: Tank wagon†	Gasoline: Posted retail	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco	12.0	15.0	4.0	12.5
Los Angeles	10.0	13.0	4.0	12.5
Fresno, Calif.	12.0	15.0	4.0	14.0
Phoenix, Ariz.	18.5	21.5	6.0	‡16.0
Reno, Nev.	18.0	21.0	5.0	15.5
Portland, Ore.	19.0	22.0	5.0	13.5
Seattle, Wash.	13.0	16.0	6.0	13.5
Tacoma	13.0	16.0	6.0	13.5
Spokane	21.0	24.0	6.0	18.0

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

‡Includes 5 cents state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Philadelphia, Pa.	14 5	16.5	4.0	10.0
Pittsburgh	15.0	17.0	4 0	10.0
Allentown	14.5	16.5	4.0	10.0
Erie	15 0	17.0	4.0	9 0
Scranton	15.0	17.0	4.0	10.0
Altoona	15.0	17.0	4.0	10.0
Dover, Del.	15.0	17.0	4.0	10.0
Wilmington	15.0	17.0	4.0	9.0
Boston, Mass.	14.5	16.5	4 0	8.0
Springfield	14.5	16.5	4.0	8.5
Worcester	15.5	17.5	4.0	9.0
Hartford, Conn.	14.4	16.4	3.0	9.0
New Haven	14.2	16.2	3.0	9.0
Providence, R.I.	12.0	14 0	3.0	8.0

Note—Tank wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

New York and Part of New England

STANDARD OIL CO. OF NEW YORK

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	16.1	17.1	4.0	9.0
Met. New York	14.5	15.5	4.0	8 0
Buffalo	16.5	17 0	4 0	8.5
Rochester	16.0	17.0	4.0	8 5
Syracuse	16 0	17.0	4 0	9.0
Boston, Mass.	15.5	16.5	4.0	8 0
Portland, Me.	17.3	18.3	5.0	9 5
Manch't'r, N.H.	18.3	19.2	5 0	9.0
Burlington, Vt.	18.8	19.8	5.0	9.5

Canada*

IMPERIAL OIL, LTD.
Imperial 3-Star Gasoline

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Hamilton, Ont.†	26.5	27.5	6.0	17.5
Toronto, Ont.†	26.5	27 6	6.0	17.5
Brandon, Man.*	31.0	34.5	7.0	22.5
Winnipeg, Man.	28.7	31.7	7.0	20.2
Regina, Sask.	29.0	32.0	6.0	21.5
Saskatoon, Sask.	31.8	34.8	6.0	24.3
Edmonton, Alta.	31.2	34.2	6.0	23.7
Calgary, Alta.	28.5	31.5	6.0	21.6
Vanc'ver, B.C.†	30.0	31.0	7.0	24.0
Montreal, Que.	24.0	27 0	6.0	17.0
St. Johns, N. B.	26.5	30.5	7.0	21.0
Halifax, N. S.	25.5	29.5	6.0	21.0

*Imperial gallon used in Canada. †Dealer discount posted tank wagon on gasoline in Ontario and British Columbia subject to dealer's discount of 3 cents per gallon.

Retail Price Changes

Regular-Grade Gasoline and Kerosene

Continental Oil Co. April 6 reduced tank wagon and service station prices of gasoline 1½ cents in Salt Lake; April 7, reduced them 1 cent further; April 9, reduced them 1 cent further; April 10, reduced them 1 cent further. Tank wagon and station gasoline prices were advanced 1 cent each in Billings, Mont., April 12 and on April 13 these prices were reduced 1 cent in Great Falls, Mont.

Magnolia Petroleum Corp. advanced the gasoline tank wagon price in Houston to 17 cents on March 13. On March 11 the kerosene price was reduced to 7 cents in Texarkana.

Standard Oil Co. (Kentucky) March 27 advanced tank wagon and service station prices of gasoline 3 cents in Lexington. March 31, reduced tank wagon and service station prices 1 cent in Paducah. March 31, advanced tank wagon and service station prices 1½ cents in Atlanta. April 4, reduced tank wagon and service station prices one-half cent in Pensacola. March 8, advanced tank wagon price of kerosene one-half cent in Augusta. March 31, advanced kerosene 1 cent in Jacksonville.

Standard Oil Co. of New Jersey April 6 reduced service station price of gasoline 1½ cents in Salisbury.

Standard Oil Co. of Louisiana April 4 advanced service station price of gasoline 2 cents in Nashville; April 6, reduced service station price 1 cent in Nashville; April 7, reduced service station price 1 cent in Nashville. April 5, advanced service station price 1½ cents in Shreveport. April 7, reduced service station price 1½ cents in New Orleans.

Standard Oil Co. of California April 9 reduced tank wagon and service station prices of gasoline 2 cents in Seattle and Tacoma.

Atlantic Refining Co. April 11 advanced tank wagon and service station prices of gasoline 1 cent in Erie; April 7, advanced tank wagon and service station prices 1 cent in Wilmington; April 7, reduced tank wagon and service station prices .6 cent in Springfield; April 9, reduced tank wagon and service station prices one-half cent in Providence. April 10, reduced tank wagon price of kerosene 1 cent in Wilmington and one-half cent in Boston; April 11, reduced kerosene one-half cent in Providence.

Standard Oil Co. of Indiana April 5 reduced tank wagon and service station gasoline 1½ cents in Joliet; March 29, reduced service station gasoline 1 cent and tank wagon kerosene .8 cent in Mason City; March 31, reduced service station gasoline 2.2 cents in Sioux City; April 11, reduced tank wagon and service station gasoline 2½ cents in St. Louis, Mo.

Standard Oil Co. of New York April 13 reduced tank wagon price of kerosene one-half cent in metropolitan New York.

Standard Oil Co. (Indiana) reduced the gasoline tank wagon and station price 1 cent April 17.

SINCLAIR BUYS PARCO

Subject only to confirmation of the court, the Consolidated Oil Corp. has purchased the Parco, Wyo., refinery of the Producers & Refiners Corp. at receiver's sale and, along with the West Tulsa, Okla., refinery purchased under similar conditions earlier, acquires all of the operating plants of the P. & R. In addition, the town of Parco was sold to Consolidated for $1,775,000, including buildings, streets, parks, etc. The Parco plant and connecting pipe lines brought $1,151,223 to the Producers & Refiners creditors.

Just what the Consolidated Oil Corp. will do to utilize these newly acquired properties will not be announced until after approval of the sale. The properties will probably be placed under the supervision of the Sinclair Refining Co., the operating company for the Consolidated.

Hope for Better Prices in Chicago Area as Market Continues to Strengthen

BY SPECIAL CORRESPONDENT

CHICAGO, Apr. 16.—Sellers, in this case principally refiners, continued to be strongly in control of the refinery market for virtually all petroleum markets as the week opened, and there were many indications that they might be able to maintain their recently improved grip on the situation and force prices still higher, on top of the substantial advance enjoyed in the last two weeks.

While gasoline led the list in extent of price betterment, strength was rapidly developing in other products, both as a sympathetic development and as a reflection of stronger demand-and-supply relationships. Tone in this market has reversed itself completely. There is a great deal of cheerfulness over the outlook, whereas late March found deep gloom everywhere.

Want Instructions

Low octane motor gasoline was held by many sellers at the start of the week above 4 cents, and it was available close to that figure only in cases where buyers were willing to furnish prompt shipping instructions. Few refiners were willing to consider selling over any period except at much higher prices. Some carlot marketers have been trying to purchase considerable material, but many of them have found nothing available below prices quoted direct to jobbers.

Jobbers themselves are still not extremely well convinced buyers, and most of the strengthening appears to have arisen as a result of restricted supply and offerings, rather than any great volume of pent-up buying from jobbers. One of the things keeping jobbers from larger purchases seems to be the fact that their margins, extremely wide through March, have now narrowed rapidly, at least in many localities. This narrowing has come not only from abruptly advancing tank car prices, but also from the great number of local retail price cuts. It had been assumed that these cuts would dry up automatically, but up to this time this remains to be seen. A good many additional cuts are being made in smaller communities, even in the last few days.

Motorists on Roads

Motorists are on the highways in large numbers and consumption is all that could possibly be desired for this season of the year, especially considering that weather has not been particularly favorable. Both jobbers and majors are enjoying good-sized increases. At week-ends the demand is especially good.

Reports from representative sellers would indicate that, while there is still much buying of third-grade gasoline on the part of the public, regular grades are holding their own, despite many reductions in third grade prices and consequently wider differentials than usual. High gravity gasolines are quiet and not moving very well. There is a better tone to the natural gasoline market.

New Sales Campaigns

The trade is interested in new products being brought out by major companies and announced in advertising and sales promotional drives. In some cases products are advertised as new, in others improved and in others large advertising campaigns are simply being instituted for old products. Antiknock performance is still being featured as the keynote of gasoline characteristics in most of these campaigns.

Kerosene and Distillates

An interesting accompaniment in the strengthening of gasoline is furnished by the improvement in kerosene and all materials for tractor fuels. Kerosene is not lagging far behind low octane gasoline in price. From the northwest, lakes district, central and southwestern districts come reports of a large amount of plowing and field work in general. A large variety of products is being used as tractor fuel, and consequently, such items as prime and straw distillate, instead of going into their seasonal price decline as heating oils, are strong and advancing

(Continued on Next Page)

Crude Oil Prices

(Continued from Page 53)

Effective September 29 in Salt Flat by Shell Petroleum Corp.

Rocky Mountain States

Iles, light (Sept. 29, 1933)	$.96
Iles, heavy (Sept. 29, 1933)	.90
Florence, Colo. (June 17, 1933)	.30
Fort Collins and Wellington, Colo. (June 17)	(See Salt Creek prices)
Big Muddy (Sept. 29, 1933)	1.01
Frannie, light (Sept. 29, 1933)	.87
Frannie, heavy (Sept. 29, 1933)	.62
Salt Creek and LaBarge (Sept. 9, 1933)	
See Stanolind Mid-Continent price schedule	
Grass Creek, light (Sept. 29, 1933)	1.18
Grass Creek, heavy (Dec. 15, 1932)	.45
Elk Basin (Sept. 29, 1933)	1.18
Rock Creek (Sept. 29, 1933)	1.02
Dutton Creek (July 8, 1933)	See Mid-Continent gravity prices
Lance Creek (Dec. 16, 1932)	.92
Poison Spider (Mar. 5, 1931)	.70
Hudson (June 2, 1931)	.65
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage	1.08
Lost Soldier (Sept. 30, 1933)	.88
Hamilton Dome (Dec. 16, 1932)	.35
Torchlight (Sept. 29, 1933)	1.18
Greybull (Sept. 29, 1933)	1.18
Pondera	1.15
Sunburst (Sept. 29, 1933)	1.35
Cat Creek, Montana	1.07
Hogback (Sept. 29, 1933)	1.11
Lea County, N. Mex. (Sept. 29, 1933)	.75
Maljamar (Sept. 29, 1933)	.70
Artesia-Jackson (Dec. 1, 1933)*	.75

Note—Salt Creek, Torchlight, Elk Basin, Grass Creek, Frannie, Greybull, Hogback and Iles by Stanolind Oil & Gas Co. Elk Basin, Grass Creek light, Big Muddy, Rock Creek and Sunburst by Ohio Oil Co. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oi Co. Lea County, effective September 29, 1933, by Humble Oil & Refining Co. and other buyers; Fort Collins, Wellington, Orchard, Florence, Big Muddy, Cat Creek, Rattlesnake and Table Mesa by Continental Oil Co. Osage posted by Arro.

*Continental Oil Co.

North Louisiana and Arkansas

Smackover, Ark. (all grades)	$.70
Tullos-Urania, La. (Jan. 13, 1934)	.87
Nevada, Ark. (Sept. 29, 1933)	.60
East El Dorado (Sept. 29, 1933)	.70
Converse, La. (Mar. 17, 1934)	1.03
Elm Grove, La. (Sept. 29, 1933)	.75
Holly, La. (Mar. 17, 1934)	1.03
Pleasant Hill, La. (Mar. 17, 1934)	1.03
Zwolle, La. (Mar. 17, 1934)	1.03
Champagnolle, Ark. (Mar. 17, 1934)	.81
Lisbon, Ark. (Mar. 17, 1934)	1.03
Stephens, Ark. (Sept. 29, 1933)	.70
Urbana, Ark. (Mar. 17, 1934)	.60
Other fields	(See gravity table)

Note—Smackover: Effective September 29, 1933, Texas Co., Magnolia Petroleum Co., Standard of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co. and Phillips Petroleum Co. East El Dorado posted by Magnolia Petroleum Co. and Gulf Refining Co., Nevada by Standard Oil Co. of Louisiana. Urania posted by H. L. Hunt, Inc., and Louisiana Oil Refining Co. Converse, Holly, Zwolle and Urbana by Standard Oil Co. of Louisiana; Elm Grove by Simmons Oil & Refining Co.; Pleasant Hill by Standard Oil Co. and Magnolia Petroleum Co.; Champagnolle by Standard Oil Co. and Lion Oil & Refining Co.

Eastern States

TIDE WATER PIPE CO.
(Effective October 4, 1933)

Bradford, Pa.	$2.45
Allegany, N. Y.	2.45

SOUTH PENN OIL CO.
(Effective October 4, 1933)

Pennsylvania Grade Oil in National Transit Lines (Bradford Field)	$2.45
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.12
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.07
Pennsylvania Grade Oil in Buckeye Pipe Line lines (Jan. 29, 1934)	1.97
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Oct. 2, 1933)	1.33

PENNZOIL CO.
(Effective October 4, 1933)

Pennsylvania Grade Oil in National Transit Lines:	
Group A (Includes Cochran, Franklin, Hamilton and Doolittle districts.	$2.37
Group B (Includes Titusville district.	2.36
Group C (Includes Turkey and Tidioute districts.	2.35
Group D (Includes Bear Creek and Porkey districts.	2.34
Group E (Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson Kennerdell, Emlenton, Tiona, Lacy and Kinzua districts. Price depends on length of pipe line haul to plant at Oil City.	2.32

PURE OIL CO.
(Effective October 4, 1933)

Cabin Creek, W. Va.	$2.07
Bradford Hollow, W. Va.	2.07
Kelly Creek, W. Va.	2.07

Middle Western States

OHIO OIL CO.
(Effective September 29, 1933)

Lima	$1.30
Illinois (Jan. 5, 1934)	1.13
Princeton, Ind. (Jan. 5, 1934)	1.13
Plymouth	Shut in
Western Kentucky	1.18
Midland, Mich. (Sept. 30, 1933)*	1.03
Oceana, Mich. (Oct. 5, 1933)	.90
Somerset, Ky. (Sept. 30, 1933)	1.23
Hart County, Ky. (Oct. 1, 1932)	1.18

*Posted by Pure Oil Co. Producers Pipe Line Co. pays 5 cents per barrel over Pure Oil Co.'s posted price. Somerset, Ky., crude purchased by Ashland Refining Co., Ashland, Ky., and posted price includes premium. Hart County, Kentucky, crude purchased by Stoll Refining Co. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Canada

Ontario (September 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (Mar. 5, 1934):†	
Clear naphtha	$2.87
Discolored naphtha	2.63
Crude oil, 50 gravity	2.44
Crude oil, 45 to 49.9	2.07
Crude oil, 40 to 44.9	1.50

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$1.76

*F.o.b. ship, based on March transactions and exclusive of production and export taxes and bar dues.

California Crude Oil Prices

STANDARD OIL CO OF CALIFORNIA
(Effective September 6, 1933)

For current purchases of crude oil at the well (unless otherwise specified). (All gravities above those quoted take highest price offered in that field.)

Gravity—	Long Beach	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canyon	Athens-Rosecrans	Torrance	Richfield	Whittier, La Habra	Montebello	Santa Fe Springs	La Habra-Coyote	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills	Coalinga	Coyote
offered in that field.)																	
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	....	$.65	$.65	$.65	$.65	....	$.65	$.57	$.57	$.57	$.65
15-15.9	.65	.65	.69	.69	.66	.69	....	.66	.65	.65	.65	....	.65	....	....	....	.65
16-16.9	.66	.65	.72	.73	.69	.73	....	.69	.67	.68	.65	....	.65	....	....	....	.65
17-17.9	.69	.65	.75	.76	.73	.76	....	.72	.70	.71	.65	....	.68	....	....	....	.68
18-18.9	.72	.65	.78	.80	.76	.79	....	.75	.74	.74	.65	....	.71	.61	.61	.59	.71
19-19.9	.75	.65	.81	.83	.80	.82	....	.78	.78	.78	.65	....	.74	.64	.65	.62	.74
20-20.9	.78	.68	.83	.87	.83	.85	....	.81	.82	.81	.66	....	.78	.67	.69	.65	.78
21-21.9	.81	.72	.86	.90	.87	.88	....	.83	.85	.84	.69	$.72	.81	.70	.73	.68	.81
22-22.9	.84	.76	.89	.94	.90	.92	....	.85	.89	.87	.72	.76	.84	.73	.76	.72	.84
23-23.9	.86	.81	.92	.97	.94	.95	$.83	.89	.92	.90	.76	.79	.87	.77	.79	.75	.87
24-24.9	.91	.85	.95	1.01	.97	.98	.86	.92	.97	.93	.80	.83	.90	.81	.82	.78	.90
25-25.9	.94	.89	.98	....	1.00	1.01	.90	.95	1.00	....	.85	.87	.92	.85	.85	.81	.93
26-26.9	.97	.93	1.01	....	1.04	1.04	.94	.98	1.04	....	.89	.90	.96	.89	.88	....	.96
27-27.9	1.00	.98	1.04	....	....	1.07	.97	....	1.08	....	....	.94	.99	.93	.91	....	.99
28-28.9	1.03	1.02	1.07	....	....	1.10	1.01	....	1.11	....	....	.98	1.02	.97	.94	....	1.02
29-29.9	1.06	1.05	1.09	....	....	....	1.04	....	1.15	....	....	1.01	1.05	1.01	.97	....	1.06
30-30.9	1.09	1.10	1.12	....	....	....	1.08	....	....	....	....	1.05	1.09	1.05	1.00	....	1.09
31-31.9	....	....	....	....	....	....	1.12	....	....	....	....	1.08	1.12	1.09	....	....	1.12
32-32.9	....	....	....	....	....	....	1.15	....	....	....	....	1.12	1.15	1.13	....	....	1.15
33-33.9	....	....	....	....	....	....	....	....	....	....	....	1.16	1.18	1.17	....	....	1.18
34-34.9	....	....	....	....	....	....	....	....	....	....	....	1.19	1.21	....	....	....	1.21
35-35.9	....	....	....	....	....	....	....	....	....	....	....	1.23	....	....	....	....	....
36-36.9	....	....	....	....	....	....	....	....	....	....	....	1.26	....	....	....	....	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	1.30	....	....	....	....	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	1.34	....	....	....	....	....

Additional Standard Oil Quotations

Elwood Terrace—F.o.b. ship, 33 degrees, $1.03; 34 degrees, $1.06; 35-35.9, $1.09; 36-36.9, $1.12; 37 degrees and over 1.15.

Newhall—14 degrees and over, 57 cents.

McKittrick and Kern River—14 degrees and over, 57 cents.

Wheeler Ridge—14 to 17.9 degrees, 57 cents; 18-18.9, 58 cents; 19-19.9, 61 cents; 20-20.9, 64 cents; 21-21.9, 67 cents; 22-22.9, 70 cents; 23-23.9, 73 cents; 24-24.9, 76 cents; 25 degrees and over, 79 cents.

Kettleman Hills—33-33.9 degrees, 93 cents; 34-34.9, 96 cents; 35-35.9, 99 cents; 36-36.9, $1.02; 37-37.9, $1.05; 38-38.9, $1.08; 39 degrees and over, $1.11.

The Texas Co. posted in Shiells Canyon, South Mountain and Santa Paula as follows: 14 to 17.9, 57 cents; 3 cents added for each degree up to and including 26-26.9 degrees at 84 cents; then 4 cents added for each degree up to and including 30 degrees and over at $1. Company posts Standard Oil Co.'s Montebello prices in Montebello and North Whittier, and posts Standard Oil Co. prices in Signal Hill, Alamitos Heights, Huntington Beach, Torrance, Richfield and Santa Fe Springs, all effective September 6.

General Petroleum Co. posts Standard Oil Co. prices in Athens, Rosecrans and Signal Hill; Alamitos Heights up to 26-26.9; Santa Fe Springs up to 35-35.9; Richfield up to 25-25.9; Brea Canyon and Olinda up to 25-25.9, and Torrance up to 25-25.9.

Union Oil Co., effective September 6, posts same price as Standard Oil Co. in all fields in which both purchase, excepting that in Athens-Rosecrans, Union Oil Co. posts 21-21.9, 72 cents, and 33-33.9, $1.18; 34-34.9, $1.21, and 35-35.9, $1.24.

Associated Oil Co., effective September 6, posted same prices for the same grades as Standard Oil Co. of California, excepting that in some fields its gravity scale stops as follows: Huntington Beach, 26 degrees and over; Seal Beach and Alamitos Heights, 26 degrees and over; Coyote Hills, 23 degrees and over; Richfield, 25 degrees and over; Torrance, 25 degrees and over; Inglewood, 24 degrees and over; Santa Fe Springs, 35 degrees and over; Midway-Sunset, Elk Hills, Buena Vista Hills, 30 degrees and over. Also Associated pays 52 cents for oil of 11 to 13.9 gravity in McKittrick, Kern Front, Kern River, Midway-Sunset, Elk Hills, Buena Vista Hills and Coalinga.

Revised Refinery Control Plan May Be Approved

(Continued from Page 11)

under rules and regulations prescribed by the Planning and Co-ordination Committee and approved by the administrator. Every effort shall be made to avoid inequities which may exist in the availability of supplies of crude oil to refiners necessary to maintain either the proper ratio between inventories and gasoline and sales thereof and/or the production of gasoline authorized in the manner set forth above, and shall recommend to the committee such withdrawals of crude oil from storage (including intercompany transactions) as are necessary to achieve the purpose of this article. No withdrawals of crude oil from storage by or in behalf of any refiner operating only in a single district shall be authorized under the terms of Article 3, Section 2, hereof, and/or rules or regulations issued thereunder, unless the application has been referred for advice to the district allocator concerned.

Sec. 4. The national co-ordinator of refining operations in the case of refiners operating refineries and/or who are maintaining gasoline inventories in more than one refining district shall adjust such operations and inventories in order that district allocations may be adjusted in such manner as to equitably meet the consolidated requirements of such refiners.

The national co-ordinator and the district allocators (or the agency established by the refinery district committee where no district allocator is appointed) shall meet at such times and places as may be necessary to provide the necessary co-ordination between districts and uniform application in each district of the rules and regulations provided thereunder. Each district allocator (or the agency established by the refinery district committee where no district allocator is appointed) shall furnish to the national co-ordinator a complete statement of the allocation made to each refinery in the district and shall furnish such regular reports as may be required by the national co-ordinator for proper performance of his duties.

No withdrawals of crude oil from storage by, or on behalf of refiners operating refineries, and/or maintaining crude oil inventories in more than one refining district, shall be authorized under the terms of Article 3, Section 2 hereof, and/or rule and regulation issued thereunder, unless the application has been referred for advice to the national co-ordinator.

Provision for Appeal

Sec. 5. Any person may appeal from any recommendation, allocation or decision of the district allocator, agency designated by the Planning and Co-ordination Committee or the national co-ordinator to the board of review provided for above, and the decision of said board of review shall be final, subject to the right of the Planning and Co-ordination Committee to review such decision.

Sec. 6. In order that the provisions of this article may not operate in such manner as to discriminate against small refining enterprises and in order to assist in orderly liquidation of excessive gasoline inventories, the Planning and Co-ordination Committee may, with the approval of the President, authorize suitable arrangements for the purchase of gasoline from nonintegrated and/or semi-integrated refiners and the resale of same through orderly channels.

Sec. 7. Upon a determination by the Planning and Co-ordination Committee that an excessive supply of gasoline or an unbalanced accumulation of inventories of gasoline exists in any district, which excessive supply and/or excessive accumulation of inventories injuriously affect interstate and foreign commerce and is such that any remedy must incidentally apply in like manner to intrastate commerce, the Planning and Co-ordination Committee, may establish fair and reasonable quotas in commerce for gasoline to be moved from all or any of the refineries or their sources of supply in the district. Such quotas shall be in accord with such rules and regulations as are promulgated by the Planning and Co-ordination Committee.

While such quotas are in effect, no person shall place in commerce or receive in commerce (interstate, intrastate or foreign) by sale, exchange, consignment or otherwise, any gasoline in excess of the quota prescribed. Before establishing quotas for gasoline the Planning and Co-ordination Committee shall hold or cause to be held, hearings with respect to the establishment of such quotas and to such other matters as in the opinion of the committee may be proper, after such reasonable public notice as may be prescribed: Provided, however, that in any emergency as determined to exist by the committee, quotas may be established for a temporary period not to exceed one calendar month without previous notice or hearing, but in such event, the committee in the next subsequent period, shall adjust quotas so allocated upon the basis of due notice and hearing hereinabove prescribed so as to prevent any inequitable allocation.

This section is to be construed and may be enforced without reference to the other provisions of this article.

Sec. 8. The Planning and Co-ordination Committee may make such rules and regulations, authorize such committees, and require such reports as it may deem necessary to accomplish the purposes of this article.

Sec. 9. The word "gasoline" as used herein shall be held to include such products as may be determined from time to time by the Planning and Co-ordination Committee.

Sec. 10. Failure on the part of any person to observe or comply with any provisions of this article or any valid order, rule or regulation hereunder, shall constitute a violation of the code.

Gasoline Market in East Has a Stronger Tone

(Continued from Page 27)

fornia shipments started to decline three and four years ago when more material became available from the Gulf Coast reflecting the large increase in Texas crude oil and refinery production. The quantity of material available at the Gulf Coast particularly fuel oil has declined this year and this in part accounts for the resumption of shipments from California, coupled with the import taxes which have reduced shipments from the Dutch West Indies and South American and Mexican refineries.

Gasoline shipments from the West Coast as shown in the table have decreased this year with kerosene shipments about the same. The improved market for lubricants has resulted in a substantial gain in California lubricants to the East Coast.

Export Situation

The export market is generally dull. This applies to lubricants and wax as well as gasoline. In the motor fuel end gasoline continues to be quoted at 4¾ cents for the 64-66 375 grade at the Gulf Coast with no important business reported over the week at that price. The U. S. Motor grade is reported to have been offered as low as 4⅛ cents at the Gulf Coast although this market appeared stronger the latter part of last week due to the improved domestic situation. Kerosene prices are unchanged.

In the lubricating end, Pennsylvania grade bright stock 8 color is quoted at a low of 34 cents in barrels for export movement. The domestic market for this product and practically all grades of steam refined stocks is strong and this is aiding in maintaining firm export quotations. The same situation applies to neutral oils.

Export and domestic prices are unchanged with wide variations in quotations on some grades. New export business is slow.

Socony-Vacuum President and Market Expert Dead

NEW YORK, Apr. 17.—William Bradley Walker, president of the Standard-Vacuum Oil Co., died Friday night at Mayo Clinic, Rochester, Minn. Mr. Walker, who was 60 years old, was operated

WILLIAM B. WALKER

on last week for an intestinal disorder. He leaves his wife and four sons. His home was in Pelham Manor, N. Y.

Funeral services were held this afternoon with Standard Oil Co. officials and friends serving as honorary pallbearers. Following cremation burial will be at Newbern, N. C.

It has been said that no one was more familiar with the problems of selling petroleum products in the Far East than William B. Walker, who late in 1933 became the first president of the newly organized Standard-Vacuum Oil Co., an organization brought about by the merger of the Far East properties of the Standard Oil Co. (New Jersey) and the Socony-Vacuum Corp.

Mr. Walker was selected to become the head of the merged operations because of an intimate knowledge of Far East operating conditions from the time the Standard company became a factor in petroleum marketing in that part of the world. He joined the Standard Oil Co. of New York organization in 1895, and the following year went to Hongkong, China, where the Standard company had opened an office. Four years later he opened a branch in the Philippines and he remained there until 1902. Later he served in various capacities and in 1916 he became general manager of the South China division.

In 1923 Mr. Walker returned to the United States after 28 years of foreign service to become a director of the company. During this period he had seen the company's business expand to the point where 400 men were employed and products were handled by 3,000 agencies.

When the Standard and Vacuum oil properties were merged, Mr. Walker became a vice president and director of the Socony-Vacuum Corp. and then its president. Mr. Walker maintained headquarters at 26 Broadway, New York.

MENTIONED FOR P. AND C.

NEW YORK, Apr. 16.—Among those being mentioned as probable new members of the Planning and Co-ordination Committee are: Walter C. Teagle, Standard Oil Co. (New Jersey); E. G. Seubert, Standard Oil Co. (Indiana); C. L. Suhr, Pennzoil Co.; H. R. Gallagher, Consolidated Oil Corp.; J. Howard Pew, Sun Oil Co.; L. P. St. Clair, Union Oil Co.; John E. Shatford, Louisiana-Arkansas Refiners Association; J. D. Collette, O'Keefe & Collette; and C. M. Boggs, Kanotex Refining Co.

Special Exhibits Feature International Exposition

A collection of special exhibits selected by the scientific and technical committee will show latest and improved scientific apparatus at the International Petroleum Exposition and Congress to be held May 12 to 19, at Tulsa, General Manager William B. Way announces.

Leading oil companies will supply the services of their scientific and technical men, chief chemists and assistants, and others, each day of the exposition, and many of the exhibitors pertaining to this special feature are doing all in their power to co-operate with the committee composed of W. A. Schlueter, chairman; L. S. Gregory, Kent Kimball, R. C. Beckstrom, Roy Ginter and P. L. (Static) Willson.

In two sessions, on May 18 and 19, dealers and jobbers will meet refiners, W. G. Skelly, president of the exposition, has announced.

"Dealers and jobbers will see at the exposition a revue of the latest practices, policies, new equipment and a forecast of the marketing division of the future at the exposition," Mr. Skelly said. "More than 8,000 invitations have been mailed to jobbers and dealers in the marketing divisions of the petroleum industry in 13 states, North Dakota, South Dakota, Kansas, Wisconsin, Minnesota, Indiana, Illinois, Colorado, Nebraska, Iowa, Missouri, Texas and Oklahoma. Invitations to other states will follow, and everybody concerned, including filling station operators, is invited to attend the sessions."

An entire building will be devoted to refiners and marketers' exhibits and the booth space in it has been completely sold out. Among the large marketing firms who will have exhibits are, Sun Oil Co., Sinclair Prairie, Deep Rock, Cities Service, Marathon, Phillips, Skelly, Wilcox, Mid-Continent, and Texas.

The executive committee in charge of arranging the meeting for refiners and marketers is composed of P. M. Miskell, of Tulsa, Empire Oil & Refining Co.; A. G. McGuire, of Milwaukee; W. G. Skelly, president of the Skelly Oil Co., Tulsa; Walter Miller, Continental Oil Co., Ponca City, and Fred Koontz, Mid-Continent Petroleum Corp., Tulsa.

Hope for Better Prices in the Chicago District

(Continued from Preceding Page)

as tractor items. All these products are scarce.

Gas Oils and Fuels

Gas oils and fuels, whether zero or high cold test, are in active demand from various classes of buyers. Some refiners who sold them a few weeks ago are now glad to buy them back at slightly higher prices. Observers characterize this as one of the most unusual seasons in recent industry history in that respect. Railroads and other industrial buyers are taking good quantities of low grade products.

Lubricants

Lubricating oils are slow but are fully strong on a fair amount of business, and inquiry is reported fairly good.

Wax

While wax stocks finally showed an increase in a recent government report, it was only after a long continued decline and the demand and the inquiry are still quite good.

Petroleum Coke

Petroleum coke near the end of the season is quiet. The best grade is a little easier in some quarters but in general the market is about steady.

Naphthas

Naphthas continue to follow gasoline rather closely, and in consequence have a strong undertone, with a rather good amount of business reported.

Wildcatting in Southwest Texas Area Extending; Important Locations in McMullen County

SAN ANTONIO, Tex., Apr. 16.—Wildcat activities throughout the Southwest Texas area, in progress for the past few weeks, is continuing at a fast pace and showing no signs of abating. The rankest wildcats, in areas that have never been tested before, together with wildcats recently announced for the area, will, within the next few weeks, hold great importance for the area.

Three important new locations have been staked on the 30,000-acre Hagist ranch in southern McMullen County. About half a mile east of the Trinity Driller's No. 1 Hagist dry hole, and in Section 1, W. C. McBride Co. staked a location for No. 1 Hagist. Lefevre & Spice staked a location for No. 2 Hagist in Section 1 and about half a mile due west of its No. 1 dry hole which was completed several weeks ago. About 1½ miles north of Lefevre & Spice's new location Al Buchanan has made location for No. 1 Hagist in the north half of the northeast quarter of Section 18.

Magnolia Petroleum Co.'s No. 1 Kincaid, wildcat test north of the Nueces River in Survey No. 199, was drilling below 4,050 feet.

Another test of especial interest is American Liberty Oil Co.'s No. 1 Dietzel, on a block of more than 5,000 acres just west of Rockport in Aransas County. Contract calls for a 6,000-foot test. Geophysical surveys were made of the area before staking the location and several major companies have taken protection near the well. Late in the week it had set surface casing at 1,000 feet.

Deep Test by Humble

In Uvalde County, Humble Oil & Refining Co. is reported making a location for a deep test to be drilled just east of the town of Uvalde and on the R. L. Anderson tract. It is reported the well will test the Trinity and the Glenrose horizons, and is possible it will be carried to the Ordovician.

The Sinton area in San Patricio County which has been attracting considerable attention during the past few weeks, seems to be cooling off a bit with no shows of importance at present encountered in any of the three tests. The Plymouth Oil Co.'s No. 1 Welder, about 1½ miles north of Sinton, was carried to a total depth of 6,602 feet and has been plugged back to 5,300 feet. It is preparing to whipstock and core two sands between 5,400 feet and 5,500 feet where a Slumberger test showed promise of production.

C. B. Bunte's No. 1 J. D. Holland, about 2 miles southwest of Sinton, was drilling below 5,200 feet. It topped the Discorbis at 4,017 feet and encountered top of the Heterostegina at 4,175 feet. Atkins & O'Neil's No. 1 Welder, 2 miles west of Angelita, was drilling below 5,300 feet with nothing showing. It had top of Discorbis at 4,066 feet and topped the Heterostegina at 4,220 feet.

At Mud Flats in the eastern part of the county, Maxwell and others have set surface casing at 600 feet in No. 1 Sadler and late in the week was waiting for cement to set. It is located in Section 32, Block 1, of the T. Perez Survey.

Four miles northeast of the North Pettus Field, southern Karnes County, George Ray's No. 1 Radford was waiting for cement to set. H. H. Weinert of Seguin is moving in material for a test on the G. Smith 142-acre tract in the B. & B. Survey. Campbell and others' No. 1 Ira Coats, in the Carlos Martinez Survey, has been abandoned as dry with total depth of 3,005 feet.

In Bee County, Caeser Oil Co.'s No. 1 Pulling, 6¼ miles northwest of the Pettus Field, was drilling at 992 feet. The Phillips Petroleum Co.'s No. 1 Morgan, on a 13,930-acre tract in the Eyles Survey, was drilling 4,460 feet.

Leasing Is Active

During the last few weeks leasing along the Fault zone area has been very brisk with numerous blocks being taken and within the near future will call for more drilling. Amerada Petroleum Co.'s No. 2 Halff & Oppenheimer, 4 miles southwest of Pearsall in Frio County, was moving in rig. This is to be a deep Edwards lime test, the third to be drilled by the company on its block of over 85,000 acres. Humble Oil & Refining Co.'s No. 2 Woodward in the north part of the county and in the Eliza Poor Survey, topped the Edwards lime at 2,818 feet and failed on a drill stem test at 2,823 feet. It has now been cored 5 feet deeper to 2,828 feet and late in the week was testing.

In Guadalupe County, J. C. Clark has staked a location for No. 1 Howell, an Edwards lime test to be started by May 1, southwest of the Darst Creek Field. O. W. Killam's No. 1 Blume, southeast of Seguin and in the John King Survey was drilling at 1,015 feet.

In the Eagle Hill Pool in Duval County, the Eagle Hill Oil Corp. is reported to have sold one-half interest in its holdings which amounted to around 700 acres with three producing wells, to the S. R. C. Oil Co. The acreage is on the Duval County Ranch and the Foster ranch. The S. R. C. Co. has taken over operations and is under contract to drill 12 wells on the property.

Continental Oil Co.'s No. 1 R. Driscoll estate, Duvall County wildcat in Section 448, was last reported drilling at 3,400 feet. Mortimer's No. 1 Peters, also an important wildcat, was reaming at 2,560 feet. This well showed good for about 15,000,000 feet of gas in the Government Wells sand from 2,542-53 feet, but had salt water in top of the Mirando sand at 2,697 feet. It has been plugged back and will try and complete in the Government Wells sand. A. H. Richardson and others' No. 1 Drummond, 6 miles northeast of the Eagle Hill Pool, has been abandoned as dry with total depth of 2,504 feet. It topped the Government Wells sand at 2,301 feet and on a drill stem test showed 18 thribbles of salt water in 10 minutes.

Government Wells Field

The Government Wells Field marked up nine new producers during the past week while the Eagle Hill Pool had one producer and one dry hole. In the Eagle Hill Pool, Al Buchanan's No. 6 Duval County Ranch was completed for 33 bbls. daily at 1,480 feet. Killam's No. 5 Welder-Wood in Survey No. 102, was abandoned as dry at 2,490 feet. In the Government Wells Field, Humble Oil & Refining Co.'s No. 20 Paul White was completed for 14 bbls. per hour through one-quarter inch choke at 2,269 feet. Magnolia's No. 24 Duval County Ranch made 175 bbls. daily at 2,332 feet. Magnolia's No. 1 Hunt bottomed hole at 2,342 feet and made 75 bbls. daily. No. 14 Wendt was completed for 120 bbls. daily at 2,321 feet. McKay and Reed's No. 3 State, bottomed hole at 2,236 feet and has been completed for 60 bbls. per hour through three-quarters inch choke. Reynosa Oil Co.'s No. 6-B Duval County Ranch made 16 bbls. per hour at 2,278 feet. Sun Oil Co.'s No. 49 Weiderkehr made 17 bbls. per hour at 2,278 feet. No. 51 Weiderkehr bottomed hole at 2,264 feet and was completed for 60 bbls. daily.

In the Jeffries-Lambeth area of south-central Starr County, Jeffries-Lambeth Drilling Co.'s No. 2 Starr County Cattle Co. is still shut in and estimated good for 125 bbls. daily. This test held interest of operators when it came in for a producer two weeks ago. The No. 1 gas well, located 800 feet to the northwest which was completed last year for 20,000,000 feet of gas is reported making considerable distillate and some casinghead gasoline. Weekley and others have staked a location a mile north of the Jeffries No. 1 gas well, and will be carried as No. 1 Starr County Cattle Co. E. L. Younkins' No. 1 Starr County Cattle Co., about 1¼ miles south of the No. 1 gas well, is reported to have cored sand at 2,562 feet and preparing to test.

DeWitt County

In DeWitt County, Humble Oil & Refining Co.'s No. 1 Kuester, a wildcat test in the S.A.&M.G.R.R. Survey No. 7, was drilling shale at 5,500 feet. Keystone Royalties is moving in material for No. 1 L. T. Burns, a test to be drilled on a 7,000-acre block, I. G. Belcher Survey.

The important test of Union Sulphur Co., No. 1 American Rio Grande Land & Irrigation Co., about half a mile north of Mercedes, was drilling at 2,750 feet.

Marine Oil Corp.'s No. 1 J. B. Dunning, in the Maria Bridget Kiolin Survey, Live Oak County, has been completed for 3,700,000 feet of gas with 48 bbls. of 62 gravity gasoline daily, and 8 bbls. of water. Total depth is 5,269 feet. It had the Oakville at 1,240 feet, the Catahoula at 1,484 feet, and the Fayette at 3,862 feet.

In the southern part of Jim Hogg County, A. W. Majors' No. 1 M. Guerra & Son was shut down at 2,586 feet. On a drill stem test from 2,272-79 feet it showed 78 joints of salt water in 10 minutes. Putnam and Bode's No. 1 McCarley in the northern part of Jim Wells County, was drilling 1,010 feet.

Near McMahan and in the eastern section of Caldwell County, Adams & Lyles' No. 1 S. C. Cole has been abandoned as dry with total depth of 2,971 feet, after showing sulphur water in the Edwards lime. Top of the Edwards was encountered at 2,917 feet. It topped the Austin at 2,439 feet, had the Buda at 2,755 feet, encountered Del Rio at 2,83? feet and drilled top of the Georgetown at 2,866 feet. About 6½ miles southeast of Lockhart, Simmons has abandoned No. 1 W. H. Callahan at 2,250 feet. It topped the Georgetown at 2,200 feet.

Two wells were abandoned as dry in Williamson County the past week. G. L. Rowsey, trustee's No. 2 John Rieger in the H. White Survey, was abandoned with total depth of 984 feet. Wilson's No. 2 Sing in the T. A. Moore Survey, bottomed hole at 581 feet and has been abandoned.

Wildcat Operations in Southwest Texas

Week Ending April 14

Company, well, farm name, section and block—	Remarks:
ARANSAS COUNTY	
American Liberty Oil Co.'s No. 1 Dietzel, 1,650 ft. from N line and 6,800 ft. from E line of John Smith Sur. in Lot 32, Blk. 4 (2 mi. NW of Rockport)	Moving in rig.
BANDERA COUNTY	
Palm-Winn Oil Co.'s (P. H. Winkle) No. 1 R. B. Watson, 600 ft. N of center of S line of tract in Sur. No. 71, 2 miles N from Medina City	T.D. 875 ft.; S.D.
Parkford et al's No. 1 Mrs. R. L. Duke, G.H.&S.A. Sur., Sec. 7	Material.
Peerless O. & G. Co.'s No. 1 Garrison Sur. No. 506, 1,500 ft. from N and 3,700 ft. from E lines of Sur. (8 mi. SW of Medina)	Location.
BASTROP COUNTY	
Chas. E. Anderson's (Ca-Tex O. & G. Dev. Co.) No. 1 Pendergrass, 1,343 ft. from NE line, 310 ft. from SE line of 130-ac. tract in Henry Warnell Sur.	T.D. 1,718 ft.; set csg. 1,639 ft.; S.D. 1,815 ft.
Anderson's No. 1 R. M. Trigg, J. Stewart Sur.	S.D.; top Serp. 1,438 ft.; show oil 1,685-1,703 ft. in Serp; T.D. 1,776 ft.; comp. 8 bbls. daily.
Chiquita Oil Co.'s No. 1 B. L. Duran, 660 ft. from NW line and 660 ft. from SW line of 102-ac. tract in L. Flint Sur.	Derrick.
Hinton et al's No. 1 Glass, 2,000 ft. from NW and 1,300 ft. from SW lines of Ferguson estate 239-ac. tract in Henry Warnell Sur.	Top Edwards 1,907 ft.; T.D. 1,909 ft.; showing sulphur water.
Marts & Bevins' No. 1 Lucy George, George Glasscock Sur., 4,200 ft. from NW line and 10,900 ft. from SW line of survey	Top Serp. 2,212 ft.; T.D. 2,520 ft.; abd.
Ogden and Sun Oil Co.'s No. 1 J. W. Snowden, 300 ft. from NE line and 255 ft. from SE line of 119-ac. tract in Jasper Standifer Sur.	Drlg. 560 ft.
Three Oil Co.'s No. 1 M. Ingram, H. S. Morgan Sur.	Drlg. 120 ft.
BEE COUNTY	
Caeser Oil Co.'s No. 1 Pulling, F. Lewis Sur., 150 ft. from NW line, 150 ft. from SW line of 25-ac. tract.	Drlg. 992 ft.
Ed Folney et al's No. 1 J. B. Borroum, 330 ft. from E line and half way between N and S lines of 8-ac. tract in Geo. Brown Sur. (4½ mi. NW of Mineral)	Rigging up.
Heep Oil Co.'s No. 1 J. C. Wood, 466 ft. from N and E lines of F. Crane Sur.	Moving in.
Howeth & Swiger's No. 1 Scott, 1,043 ft. from S line of Blk. 30 of Howeth & Swiger Subd., Molina Sur.	Drlg. 3,000 ft.
Hibert Jeanes' No. 1 G. L. Courtney, 1,400 ft. from E line, 330 ft. from S line of tract, G. A. Kerr Sur., 1¼ miles NE of Pettus	Rigging up.
McLain et al's No. 2 Laura Weiss, B.&B. Sur., 660 ft. E of No. 1	T.D. 100 ft.; S.D.
Phillips Pet. Co.'s No. 1 Morgan, 4,950 ft. from W, 3,270 ft. from N lines of 13,930-ac. tract, Eyles Sur.	Drlg. 4,460 ft.
BELL COUNTY	
Gus Winston et al's No. 2 Warrick, 100 ft. N of James Scroggins' No. 1 Warrick, in Elijah Ingram Sur.	T.D. 3,061 ft.; S.D.
BEXAR COUNTY	
A. M. Blume's No. 2 Louis Ridder, approximately 2,350 ft. N of R.R., 700 ft. E of W line of J. M. Baerera Sur. No. 58	Drlg. shale 1,342 ft.
B. M. Burger's No. 1 Billharts, 150 ft. from N and E lines of 50-ac. tract in Francisco Roler Sur., 1¼ mil. SE of Von Ormy	T.D. 910 ft.; abd.
Keiffer et al's No. 1 Ruiz, SE cor. of 82-ac. tract in F. Rowland Sur. No. 48	T.D. 1,700 ft.; S.D.
Dingman & Russell's No. 1 R. J. Coffey, 1,328 ft. from SE line, 1,086 ft. from SW line of 420-acre tract in Rodrigues Sur.	T.D. 1,400 ft.; S.D. to drill to Edwards.

(Continued on Page 63)

Wildcat Test Near Slocum, Anderson County, Thought Dry, Regarded as Possible Producer

By L. E. BREDBERG

DALLAS, Tex., Apr. 17.—Byrd & Frost's No. 1 Scott, in the Joseph Crawford Survey, near Slocum, in Anderson County, had showings of oil and gas in 3 feet of sand recovered in a 15-foot core from 5,465-80 feet, total depth. Sand was lightly saturated and had kerosene odor. Now waiting orders. Base of Austin was logged at 5,435 feet. This wildcat has been running low and looked like a dry hole, but now has a different appearance.

Franklin County

In north central Franklin County a test is to be drilled by Humble Oil & Refining Co., Edwin B. Hopkins, E. DeGolyer and Petroleum Finance Corp., on a block of approximately 6,000 acres in or near the W. D. Gill Survey. Humble owns half interest in the block and test and will have supervision of operations.

Upshur County

Another new test is scheduled by R. S. Randerson of Tulsa on a block of 4,000 acres northeast of Coffeyville in Upshur County, northeast of the Stanolind block on which a failure was drilled a year ago.

Northwest of Mineola and southwest of Quitman in Wood County, Shell Petroleum Corp. has two crews shooting.

Cass County

In Cass County, Remley, Neeley & Kamon's No. 1 Mrs. I. O. Savage, in the Mary Patterson Survey, is drilling below 543 feet in brown sticky shale.

Van Zandt County

Near Edgewood in Van Zandt County, Arthur Allen, C. A. Gilliam and Virgil Whitworth's No. 1 A. T. Bass, on a 10-acre lease in the William Hart Survey, is drilling after being shut down with surface casing cemented.

Raines County

J. W. Halsell and others' No. 1 T. F. Jones, on 22 acres in B.B.B.&C.R.R. Survey, 2½ miles south of Alba in Raines County, has cored to 1,650 feet in Nacatoch sand topped at 1,610 feet. Operators claim a showing of oil.

Freestone County

In Freestone County, Daniels Oil & Royalty Co.'s No. 1 P. D. C. Ball, in J. Y. Aguillera Survey, east of Red Lake and southwest of the Cayuga area of Anderson County, is drilling at 4,660 feet in shale and lime. The base of Austin chalk was at 4,515 feet. With elevation of 427 feet, the test had Pecan Gap chalk at 3,029-3,179 feet and topped the Austin at 4,102 feet.

Henderson County

Northeast of Opelika in Henderson County, McElreath & Suggett's No. 1 Franklin, in the Stephen Hatten Survey, is below 3,680 feet in Austin chalk. The test had Pecan Gap chalk from 2,643-2,770 feet, top of broken Austin at 3,635 feet and top of hard Austin at 3,680 feet. Elevation is 390 feet, making it approximately level with same operators' No. 1 Ferguson (fee), a failure 3 miles southwest.

In Henderson County, W. C. McGlothlin's No. 1 A. J. Saylers, in the Anderson Webb Survey, north of Murchison and west of McElreath & Suggett's wildcat, is drilling at 4,255 feet after logging base of Austin chalk at 4,135 feet. It has elevation of 420 feet and had Pecan Gap chalk from 2,709-2,825 feet.

Rector & Webb and others' No. 1 Ridlesperger, in the W. F. Mitcham Survey, is drilling northeast of Cayuga and east of Roeser & Pendleton, Inc.'s No. 1 Billett, a failure in the southwestern part of the county. It had Pecan Gap chalk from 2,280-2,509 feet and claimed top of Austin chalk at 3,117 feet, elevation 350 feet.

Sinclair Prairie Oil Co.'s Troup Station, East Texas. Left to right: H. R. Goss, gauger; Art Devall, engineer and M. M. Daniel, chief engineer

Distribution Report

Distribution reports from East Texas show a total of 16 refineries shut down. Some plants, it is claimed, shut down in the daytime and operate at night. Major trunk line runs have fallen from a 477,760-bbl. daily average for the week ending March 29 to 378,915 bbls. daily for the week ending April 12, one company dropping 36,000 bbls. per day, while several others show decreases also. Daily average deliveries over and above reported production have declined from 73,235 bbls. to 18,775 bbls.

Increase at Van

A graduated increase in the allowable production in the Van Field ordered by the Texas Railroad Commission provided for an increase of 5,000 bbls. daily for the next 30 days, 7,500 bbls. daily the second 30 days and 10,000 bbls. daily the third 30 days. The commission's last order fixed the allowable at 37,500 bbls. daily.

The increase was allowed on application of the Pure Oil Co. to meet a claimed deficiency of crude. The company owns 78 per cent of the leases. The company claimed it was not getting enough oil for its Smiths Bluff refinery, which has a capacity of 25,000 bbls. daily.

The commission announced it would hear protests against the increase April 26 and also would hear suggested changes in field rules.

Statewide Meeting

The statewide oil meeting which was to

H. J. de Latin, superintendent of pipe lines for Hanlon-Buchanan Inc., Gladewater, East Texas

Humble Well in Andrews County Making 300,000 Feet of Gas; Tools Again Lost

By L. E. BREDBERG
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Apr. 16.—Gas, first estimated at 1,500,000 feet from 2,572 feet in Humble Oil & Refining Co.'s No. 1 R. M. Means, north central Andrews County, is holding at a gauged 300,000 feet daily, with tools again lost in the hole.

When gas was encountered last week tools were blown 200 feet up the hole causing a fishing job.

Humble's No. 1 Means, in Section 2, Block A-35, Public School land, topped shale at 1,920 feet and anhydrite at 1,865 feet. Elevation is 3,166 feet.

Ector County

Honolulu Oil Co., Devonian Oil Co. and Black & Son's No. 1 Rumsey, Abrams & Fraser (Texas Co.), south central Ector County wildcat, was drilling after encountering the Yates sand marker at 2,695 feet, or 414 feet above sea level. The test, 1,980 feet from the south line and 660 feet from the east line of Section 33, Block 44, Township 2s, T.&P.R.R. Survey, is about 3½ miles southwest of Broderick & Calvert and others' No. 1 E. F. Cowden.

On the Yates sand marker, No. 1 Rumsey is about 140 feet higher than Broderick & Calvert and others' producer. However, the test was about 200 feet higher on the top of salt, reported at 1,463 feet.

Broderick & Calvert's producer topped brown lime at 3,722 feet, or minus 689 feet, topped white lime at 3,872 feet and had its first oil showing at 3,935 feet, or minus 902 feet. The well was completed at total depth of 4,338 feet for initial production of 225 bbls. daily flowing through tubing after being shot with 200 quarts from 4,138-83 feet and 40 quarts from 4,328-35 feet.

C. J. Davidson of Fort Worth has resumed drilling on No. 1 Cummins (Empire), northwestern Ector County wildcat, Section 10, Block 45, Township 1n, T.&P.R.R. Survey, after cementing 10-inch casing at 1,647 feet. The test is drilling below 1,685 feet with standard tools, substituted at 1,647 feet. Anhydrite was topped at 1,488 feet and salt at 1,576 feet with elevation of 3,294 feet.

Upton County

In Upton County, Gulf Production Co.'s No. 103 McElroy, in Section 197, Block F, C.C.S.D.&R.G.N.G.R.R. Survey, drilled to 9,825 feet in black shale.

Pecos County

In Pecos County, Humble's No. 1 White and Baker in Section 45, Block Z, T.C.R.R. Survey, 8 miles west of the Yates Pool, cored to 9,000 feet in lime and shale. It topped Ordovician at around 8,025-40 feet. Its elevation is 2,715 feet. At present depth, it is about 960-75 feet in the Ordovician.

Road in East Texas

Corduroy road leading to Tidewater Oil Co. and Texas Seaboard Oil Co.'s No. 1 Wills, a mile extension well to the newly discovered Cayuga Pool in Northwest Anderson County, Texas. Poor drainage makes corduroy roads imperative in this pool

have been held at Dallas April 16 will be held at Texarkana April 24 in connection with the East Texas Chamber of Commerce convention. The postponement would give the Railroad Commission additional time in which to show results in the fight against illegal oil production in East Texas.

Jesse Jones, Houston, chairman of the Reconstruction Finance Corp., will be the chief speaker at the meeting. W. R. Boyd, Jr., executive vice president of the American Petroleum Institute, who is to speak at an A.P.I. meeting in Fort Worth April 20, will be invited to give an address.

ROCKY MOUNTAIN RUNS

Estimated daily average production for the week ending April 14, follows:

WYOMING

	Bbls.
Salt Creek	18,420
Big Muddy	1,780
Badger Basin	40
Garland	460
Byron	480
Dallas Derby	600
Dutton Creek	90
Elk Basin	600
Ferris	20
Frannie	1,320
Grass Creek	860
Greybull	10
Hamilton Dome	640
Hudson	210
LaBarge	870
Lance Creek	260
Lost Soldier	1,260
Mule Creek	shut in
Midway	60
Notches	shut in
Oregon Basin	shut in
Osage	800
Pilot Butte	30
Rex Lake	shut in
Rock River	1,540
South Casper	shut in
Poison Spider	170
Teapot	10
Total	30,520

MONTANA

Buckley-Border	230
Cat Creek	650
Cut Bank	1,750
Dry Creek	shut in
Kevin-Sunburst	3,570
Lake Basin	50
Pondera	740
Total	6,990

COLORADO

Florence	280
Fort Collins and Wellington	570
Iles	910
Moffat	480
Orchard	110
Rangely	80
Tow Creek	270
Total	2,700

NEW MEXICO

Artesia	600
Cooper area	100
Empire area	0
Eunice area	1,090
Getty Pool	0
Hobbs	35,600
Hogback	210
Hospah	shut in
Jal	2,090
Lea area	1,850
Jackson	1,290
Maljamar	170
Rattlesnake	720
Table Mesa	80
Total	43,800
Total all fields	4,010
Total previous week	82,780
Difference	1,230

WATER MOVEMENT INCREASING

MUSKEGON, Mich., Apr. 14.—Water movement of gasoline, fuel oil and other petroleum products in and out of the Muskegon Harbor so far this year indicate this season's business will reach greater proportions than any time since peak production of crude oil in the Muskegon Field in 1929.

Four tankers of gasoline, three for the Standard Oil Co. of Indiana and one for the Shell Petroleum Corp., and two of fuel oil for the Standard, have arrived here from refineries in Whiting, Ind., and East Chicago.

It was also announced here last week when the tanker Martha E. Allen arrived with the first cargo of Shell gasoline of the season that about eight boat loads were expected to be transported to Muskegon for distribution throughout western Michigan this season.

Standard Oil Co. shipments also are expected to show a marked increase this year.

Use of Alcohol Bottle Restriction Plate Pressure Reducing System Described

By THURMAN H. MYERS
Penn-United Gas Co., Wellsboro, Pa.*

Large volume gas wells with unusually high rock pressure for the eastern fields together with varied load demands has resulted in many experiments being made in an attempt to perfect a satisfactory and economical pressure reducing system for delivery of the gas from wells to meet the local conditions in the Tioga-Potter County area of northern Pennsylvania. From our experiments we have adopted for the present what we call the "Alcohol Bottle-Restriction Plate Pressure Reducing System."

We have carried on experiments with the alcohol bottle in connection with both valves and restriction plates with satisfactory results but find good results are obtained with less consumption of alcohol with restriction plates than with valves. In one case where the well-head pressure was 1,400 pounds with an open flow volume of 3,000,000 feet daily we installed a restriction plate in a 4-inch flow line and made an attempt to deliver gas with an 800-pound back pressure. This experiment was made with alcohol bottle in operation and again without it, but in both cases constant freezing was encountered. From the results of this experiment we decided the space in a 4-inch line and the area of surface of a 4-inch restriction plate was entirely too great for the alcohol to function properly. A tap was then made in a 2-inch flow line, about 4 inches from a 2-inch valve on upstream side. Through this tap alcohol was fed from the alcohol bottle at the rate of approximately 2¼ gallons in each 24 hours. An 800-pound back pressure was held on the well by choking at the 2-inch valve in the flow line. By means of this arrangement perfect results were obtained and no more freezing occurred. This is the only well, however, where we adopted this reducing system. All other wells were connected up with Alcohol Bottle-Restriction Plate System, where the required reduction in pressure could not be obtained without freezing with the restriction plate alone.

We find it is advisable to install alcohol bottle and restriction plate or control valve in line of not more than 2 inches in diameter if good results are to be obtained. The tap for alcohol bottle should be made in the line on the upstream side about 4 inches from restriction plate or control valve.

The alcohol bottle can be made from a section of 7-inch 24-pound lapweld casing by welding both ends. The bottles we have in operation have an average capacity of 7 gallons.

With the bottle placed horizontally a 1-inch tap is made in the top and at one end into which is welded a 1-inch pipe nipple equipped with a 1-inch globe valve and a quarter-inch tap below the globe valve. The bottle is filled through this 1-inch pipe. A quarter-inch line connecting with the two ends of the bottle is an equalizer line to equalize the pressure on the bottle.

From the other opening in the tee a one-half inch line extends to tap in the flow line. A one-half inch needle valve is installed in this line through which the alcohol is fed into the flow line. This valve is fully opened when the bottle is in operation.

It was discovered that alcohol would not flow from the bottle into the gas flow line when a quarter-inch line was used from the tee to the flow line with the equalizer line of a diameter of one-quarter inch. When increased to a half-inch line perfect results were obtained. The total cost of the alcohol bottle and restriction plate installation at any of our wells has not exceeded $60.

The bottle should be placed in almost horizontal position with only sufficient elevation to permit the alcohol to flow into the line. The half-inch needle valve is first opened wide. The quarter-inch valves are then opened and adjusted to the minimum flow required to prevent freezing.

If the adjustment is made when the bottle is half full of alcohol the quarter-inch valves should need no further adjustments unless plates are changed or the rate of delivery of gas is very materially changed. After this adjustment has been made the half-inch valve is operated to stop or start flow of alcohol into gas delivery line.

During the past year we have been called upon to deliver from 3,000,000 to 10,000,000 feet of gas daily from five of our wells scattered over a distance of 8 miles. One man has handled all of the field work, taking care of the wells, control systems and reading the charts. Since all of the equipment and pipe to the downstream side of the drip is of high test material, sufficiently strong to stand the maximum pressure of the well, no damage can be done in case of freezing in any part of the system.

With the present deliveries from our wells in Tioga area the back pressures have been reduced to a point where it is no longer necessary to use alcohol continuously. When any indication of freezing is noted, which is not often, the alcohol bottle is placed in operation and within 5 or 10 minutes the trouble is cleared.

In the Tioga area we have discovered a larger amount of fresh water is being trapped in a drip on the upstream side of the restriction plate than on the downstream side. This would seem to indicate that fresh water is being condensed through expansion of gas entering the well from the sand where the well head pressure has been greatly reduced.

As a further experiment we have installed a system at our U. B. Russell well in Potter County, in the construction of which two drips were used with the alcohol bottle-restriction plate placed in a 2-inch line between. The flow line is 4-inch except where the restriction plate has been installed.

In the operation of this system we hope to trap most of the water before it reaches the restriction plate, but up to the present time no test has been made.

*Before A.P.I. Division of Production, Eastern District, State College, Pa.

Security Bill Includes Royalties in Regulations

By bringing oil royalties within its control the Federal Trade Commission plans to snap shut one of the largest loopholes in the securities act. Royalties were not specifically mentioned in the definition of "security" in the act and many believed that the law could never be construed to apply to these instruments. Several court decisions have held that royalties were an interest in oil held underground to be paid for upon its removal and, therefore, real property. In many states their transfer is recorded with the county clerk, as on a mortgage. So such a ruling of the FTC might be contested. But it is doubtful if reputable dealers in royalties would join in the action; they are only too glad to see order coming into their business.

Oil royalties have a legitimate place in the investment field, says Business Week. They represent an interest in a commodity that may be held in its natural location without storage charges, one for which there is a steady demand and which is subject to price changes in line with general commodity movements. It is an almost perfect hedge against inflation. Properly dealt in, the buyer receives an excellent return while the seller—usually a farmer and usually in need of funds—obtains part of the value of his land in cash.

But, unfortunately, the loophole left in the securities act has attracted into the royalty business fly-by-night dealers barred out elsewhere. Misrepresentation, exaggeration of possible return, gross overcharging, map faking were among the many frauds perpetrated. Salesmen have sometimes forgotten to point out that oil wells do not flow forever, that a high yield may be offset by the early death of the investment.

FTC plans have been designed to check frauds while not interfering with legitimate sale of royalties. The idea is not to require registration of each royalty, but in every case to call upon the seller to give specified information to prospective buyers and to file a copy of this offering in Washington. False or misleading information would make the seller liable.

The pending Fletcher-Rayburn bill for the regulation of stock exchanges does include in its definition of a security "any participation . . . in any oil, gas, or other mineral royalty or lease." This should tend further to limit the fraud in the sale of these instruments. While no way has yet been found to legislate prudence and intelligence into investors, the administration is doing all it can to have honest data always available.

East Central Texas Wildcats

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks
Pete Burton et al's No. 1 Freeman Baptist Church, 105 ft. due W of NW cor. of W. Chancellor Sur. in center of a 2-ac. tract, W. T. Meredith Sur.	Location.
Byrd-Frost et al's No. 1 Alice Scott, 3,200 ft. from N and 700 ft. from E lines of Joseph Crawford Sur., 1½ miles NW of Slocum	Fishing 4,727 ft.
Standard of Kansas' No. 1 A. W. Johnson, 565 ft. from N line, 420 ft. from E and W lines of 22.8-ac. tract, Simon Sanches Sur.	Derrick.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 Annie Wills, 1,400 ft. from W and 3,600 ft. from N lines of the E. Edmondson Sur., 5,400 ft. NE of discovery well	Prepare to set csg.; T.D. 4,086 ft.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 L. A. Rampy, 467 ft. from S and W lines of Rampy 103.38-ac. tract, James Wilson Sur.	Drlg. 3,675 ft.
Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 W. C. Wortham, 467 ft. out of most westerly SW cor. of Wortham 100.87-ac. tract	Drlg. 3,408 ft.

CHEROKEE COUNTY

A. R. Lewis et al's No. 1 J. Bradford, 1,400 ft. from W line and 200 ft. from N line of 50-ac. tract, J. Laprella Sur.	Derrick.
A. F. Richardson's No. 1 P. Wood, 660 ft. from N line, 3,300 ft. from E line of 498-ac. tract, 14 miles E of Jacksonville, on Cherokee-Rusk County line, Ignacio Sanches Sur.	Derrick.

FANNIN COUNTY

L. Kean et al's No. 1 L. M. Boyd, 900 ft. from E line and 200 ft. from N line of survey, W. Hunt Sur.	Drlg. 1,872 ft.

FREESTONE COUNTY

Clyde Creighton's No. 1 Holly Bros., 854 ft. from W and center N and S lines of lease, A.B.&M. Sur.	Waiting on cmt. to set; T.D. 5,180 ft.
Daniels Oil & Royalty Co.'s No. 1 P. D. C. Ball, 10,380 ft. from S line and 1,980 ft. from W line of survey, Jose Ignacio Auguilera Sur.	Drlg. 3,855 ft.

GREGG COUNTY

Booth's No. 1 Willis Smith, 1,800 ft. from W line and 1,670 ft. from N line of survey, J. S. Carrithers Sur. ..... Location.

George Carver's No. 1 R. M. Wood, 2,250 ft. from S line and 100 ft. from W line of survey, H. R. Hokit Sur. ..... Waiting on standard rig; T.D. 3,641 ft.

Elseep Oil Co.'s No. 1 G. S. Mattox, 3,460 ft. from N line and 1,200 ft. from W line of survey, D. Sanches Sur. ..... Running tubing; T.D. 3,632 ft.

Mid-Field Oil Co.'s No. 1 A. C. McCormick, 850 ft. from N line and 2,620 ft. from most easterly W line of survey, W. P. Chisum Sur. ..... Derrick.

Powderhorn Petroleum Co.'s No. 1 R. Stell, 6,300 ft. from W line and 100 ft. from N line of John Wilkerson Sur. ..... S.D. 1,900 ft.

Snowden et al's No. 1 J. T. Florence, 6,120 ft. from W line and 6,000 ft. from S line of M. V. Winkle Sur. ..... Waiting on cmt. to set; T.D. 3,502 ft.

Webster Oil & Gas Co.'s No. 1 Register, 866 ft. from S line and 1,450 ft. from W line of survey, G. F. Penn Sur. ..... Waiting on cmt. to set; T.D. 2,400 ft.

HENDERSON COUNTY

H. A. Baker et al's No. 2 J. J. Dupuis, 250 ft. from S line, 250 ft. from E line of tract, Geo. Hancock Sur. Bldg. derrick.

Roy Black et al's No. 1 C. B. Meredith, 360 ft. from N and W lines of 64.5 ac. tract, 4 miles SE of Malakoff, Wiley Kay Sur. ..... Location.

Campbell and Champlin's No. 1 R. S. Ansley, 108 varas S, 623 varas W of NE cor. of lease, 6 miles SE of Buffalo, N. H. Thompson Sur. ..... Derrick.

McGlothin et al's No. 1 A. J. Saylor, 330 ft. from W line and 517 ft. from N and S lines of 101-ac. lease, 3 miles NE of Murchison, Anderson Webb Sur. Spudding at 200 ft.

McElreath and Suggett's No. 1 C. D. Franklin, 330 ft. from N line and center of E and W lines of S 38 acres of C. D. Franklin 95-ac. tract, Stephen Hatton Sur. ..... Rig up.

Rector-Webb et al's No. 1 C. A. Riddlesperger, 225 ft. from S and W lines of 50-ac. lease out of 203-ac. tract, 10 miles SE of Malakoff, W. F. Mitcham Sur. ..... Drlg. 3,400 ft.

HUNT COUNTY

H. C. Waggoner et al's No. 1 Love, 300 ft. from N line, 6,300 ft. from W line of 95-ac. tract, John Gillsky Sur. ..... Drlg. 1,614 ft.

KAUFMAN COUNTY

W. J. Lewis et al's No. 1 D. Clark, 430 ft. from S line and 600 ft. from E line of survey, 6½ miles NW of Elmo ..... Rig up.

LAMAR COUNTY

Cole et al's (formerly Optometrist Oil Club) No. 1 J. M. McFaddin, 450 ft. from S and W lines of E 25-ac. tract, 10 miles NW of Paris, Joseph Dick Sur. ..... S.D. 2,506 ft.

LEON COUNTY

Cooper et al's No. 1 W. E. Cozart, 1,000 ft. from SE cor. of 266-ac. tract in SW part of county, Thomas Gardner Sur. ..... Rig up and S.D.

Gholson Drlg. Co.'s No. 1 Alliance Trust Co., 330 ft. S and E of Humble's Alliance Trust Co., 3,000-ac. tract, Simon Sanches Sur. No. 9 ..... Location.

Shell Petroleum Corp.'s No. 1 Lee, 1,500 ft. from NW and SW lines of farm and survey, William Cooper Sur. ..... Reaming to make drill stem test; T.D. 5,703 ft.

Tide Water Oil Co. and Texas Seaboard Oil Co.'s No. 1 G. W. Burkett, 8,500 ft. due S and 1,400 ft. from W at right angles from Magnolia Ferry, Simon Sanches Sur. No. A-33 ..... Bldg. road to location.

LIMESTONE COUNTY

C. M. Joiner et al's No. 1 S. A. Knobb, 900 ft. from N line and 1,000 ft. from W line of survey, one-half mile N of Falls County line, Luke Moore Sur. ..... S.D. 1,700 ft.

J. Rodgers et al's No. 1 Vol DeLone, 1,516 ft. from W line and 600 ft. from N line of W 100-ac. tract, Pedro Varela Sur. ..... Shut down.

NACOGDOCHES COUNTY

Dick Schwab et al's No. 1 Z. Rambain, 990 ft. from N line and 330 ft. from W line of 97.5-ac. tract, J. Simpson Sur. ..... Drlg. 1,930 ft.

NAVARRO COUNTY

W. J. Keeling et al's No. 1 J. F. Rushing, 484 ft. from N line and 150 ft. from W line of 184-ac. tract, 6 miles SW of Richardson, Henry Ford Sur. ..... Location.

J. B. Stoddard et al's No. 1 C. S. West estate, 1,000 ft. from W line and 650 ft. from N line of 682-ac. tract, Mathew Boren Sur., Abstract No. A-56 ..... Rigging up.

RAINES COUNTY

J. W. Hallsell et al's No. 1 P. F. Jones, 400 ft. out of SW cor. of 22-ac. tract, 2½ miles S of Alba, B.B. B.&C. Sur. ..... Drlg. 1,632 ft.

RUSK COUNTY

Arnold and Shaw's No. 1 J. E. Arnold, 1,530 ft. from S line and 300 ft. from most southerly E line of survey, J. Crawford Sur. ..... Derrick.

Bond Oil Corp.'s No. 1 Bradford, 5,900 ft. from W line and 6,800 ft. from S line of survey, Juan Ximenes Sur. ..... Derrick.

George Hudson et al's No. 3 Jeff Phillips, 150 ft. from N line of survey and 700 ft. from W line of 100-ac. tract, 4 miles SE of Minden, N. Villaria Sur. .... Drlg. 2,600 ft.

Johnson et al's No. 1 L&G.N.R.R., 3,920 ft. from E line, 400 ft. from S line of survey, Wm. Kellen Sur. .... Rig up.

A. A. Oil Co.'s No. 1 Geo. Curbo, 1,900 ft. from S line, 330 ft. from E line of Wm. Christian Sur. ..... Location.

Tress Oil Co.'s No. 1 W. A. Stroube, 7,180 ft. from W line and 200 ft. from S line of survey, Juan Ximenes Sur. ..... Rig up.

SMITH COUNTY

Humble Oil & Refining Co.'s No. 1 H. C. Tucker, 2,030 ft. from N line and 700 ft. from E line of survey, J. Bell No. A-160 Sur., 3 miles SW of Friendship .. Drlg. 3,816 ft.

UPSHUR COUNTY

Virgil Hodges et al's No. 1 J. M. Floyd, 330 ft. from NE cor. of 126-ac. tract, 4 miles N of Gladewater, Railroad Sur. ..... Derrick.

VAN ZANDT COUNTY

Gillum and Allen et al's No. 1 A. T. Bass, 150 ft. from W. line and 150 ft. from N line of 10-ac. tract, William Hart Sur. ..... S.D. 60 ft.

Griffith Bros.' No. 1 Bruce, 1,000 ft. from S line and 330 ft. from E line of 124-ac. tract, G. Martinez Sur. ..... S.D. 1,562 ft.

Humble O. & R. Co.'s No. 1 S. R. Ray, 200 ft. S, 160 ft. W of J. D. Listenbee 30-ac. lease in Nacogdoches County School Lands Sur. ..... Waiting on pumping equipment; T.D. 1,237 ft.

Pure Oil Co.'s No. 2 Ray, 350 ft. N of S line and 183 ft. W of E line of tract, Nacogdoches County School Land Sur, elev. 449.7 ft. ..... S.D. 1,215 ft.

Pure Oil Co.'s No. 4 R. C. Crim, 700 ft. N of S line, 241 ft. W of E line, Nacogdoches County School Land Sur. ..... S.D. 2,944 ft.

Pure Oil Co.'s No. 7 I. D. Miller, 150 ft. S of N line and 210 ft. W of E line of I. D. Miller 40-ac. tract, John Walling Sur. ..... Set surface csg. 305 ft.

Pure Oil Co.'s No. 16 R. L. Wells, 420 ft. W of E line and 500 ft. N of S line of R. L. Wells 26-ac. tract, H. V. Moore Sur. ..... Drlg. 1,717 ft.

Pure Oil Co.'s No. 10 Ella York, 870 ft. N of S line and 200 ft. E of W line of Ella York 109-ac. tract, John Walling Sur. ..... Location.

Pure Oil Co.'s No. 3 W. F. Swain, 338 ft. N of S line and 200 ft. W of E line of W. F. Swain 33.06-ac. tract, John Walling Sur. ..... Location.

Ray Drlg. Co.'s No. 1 J. W. Mallory, 1,150 ft. from S line, 150 ft. from W line of 217-ac. tract, John Walling Sur. ..... Drlg. 740 ft.

J. D. Wrather et al's No. 1 G. W. Carter, 890 ft. from S line, 150 ft. from W line of 171-ac. tract, 4 mi. NE of Van, Wm. Daniel Sur. ..... Running csg.; T.D. 2,909 ft.

WOOD COUNTY

D. T. Cauble and Thompson's No. 1 N. G. Bobett, 650 ft. from S line and 330 ft. from W line of tract, 4½ miles NW of Mineola, Daniel Fuller Sur. ..... Fishing; T.D. 4,970 ft.

McElreath and Suggett's No. 1 B. D. Holley, 466 ft. from S and W lines of Holly tract, 8 miles SW of Winnsboro, James M. Moore Sur. ..... Location.

Wildcat Operations in West Texas

ANDREWS COUNTY

Company, well, farm name, section and block— Remarks:

Fuhrman Pet. Co.'s No. 1-B Bonner, 1,320 ft. from N line and 1,320 ft. from E line of Sec. 25, Blk. A-43, P.S.L. Sur. ..... Drlg. 3,695 ft.

Humble Oil & Ref. Co.'s No. 1 R. M. Means, 660 ft. from N and 660 ft. from E of Sec. 2, Blk. 2-35, P.S.L. Sur. Drlg. 2,146 ft.

Humble Oil & Ref. Co.'s No. 1 Kuykendall, 1,320 ft. from S and E lines of Sec. 24, Blk. A-46, P.S.L. Sur. ..... Drlg. 1,550 ft.

Landreth Prod. Co.'s No. 1 Clarence Scharbauer, 660 ft. from S and E lines of Sec. 20, Blk. 44, Twp. 1n., T.&P. Sur. ..... Location.

Llano Oil Co.'s No. 1 J. E. Parker, 330 ft. from N line, 990 ft. from E line of Sec. 18, Blk. A-44, P.S.L. Sur. Location.

BORDEN COUNTY

Continental Oil Co.'s No. 1 Johnson, 660 ft. from S line and 660 ft. from E line of Sec. 34, Blk. 32, Twp. 4n, T.&P. Sur. ..... Location.

BREWSTER COUNTY

Joiner-McIntyre's No. 1, 853 ft. from S, 2,390 ft. from E of Sec. 31, Blk. 352, W. M. Mitchell Sur. ..... S.D. 1,450 ft.

COKE COUNTY

Wm. Hooper's No. 1 Gaston, 240 ft. from S line and 654 ft. from W line of Joseph Sur. No. 11 ..... S.D. 1,365 ft.

CRANE COUNTY

Gulf Prod. Co.'s No. 1 Edwards, 330 ft. from S line and 330 ft. from E line of Sec. 21, Blk. B-18, Public School Land Sur. ..... Drlg. 4,512 ft.

Storey, Frievele & Duffy's No. 1 G. L. Brown et al, 330 ft. from N and E line of Sec. 34, Blk. 43, Twp. 4s, T.&P. Sur. ..... Drlg. 4,190 ft.

Wahlenmaier Petroleum Corp.'s No. 1 W. P. Edwards, 330 ft. from N and 330 ft. from E of SW cor. of the NE of Sec. 12, Blk. B-23, P.S.L. Sur. ..... Drlg. 880 ft.

CROCKETT COUNTY

Porter Rankin's No. 1 Todd, 1,500 ft. from N line and 3,020 ft. from E line of Sec. 68, Blk. UV, G.C.&S.F. Sur. ..... Drlg. 1,320 ft.

J. D. Young's No. 1 Shannon, 330 ft. from W line, 330 ft. from N line of Sec. 35, Blk. 1, G.C.&S.F. Sur. ..... S.D. 3,635 ft.

CULBERSON COUNTY

Miller Bros.' No. 1 fee, 1,980 ft. from N and 660 ft. from E line of Sec. 21, Blk. 97, P.S.L. Sur. ..... S.D. 1,965 ft.

DAWSON COUNTY

Ray Albaugh et al's No. 1 John Robinson, 1,320 ft. from N line, 1,320 ft. from W line of Sec. 46, Blk. M, E.L.R.R. Sur. ..... Cleaning out 1,750 ft.

ECTOR COUNTY

Atlantic Oil & Prod. Co.'s No. 2 Holt, 660 ft. from N line and 1,980 ft. from E line of Sec. 19, Blk. A, P.S.L. Sur. ..... Location.

C. J. Davidson et al's No. 1 Cole, 660 ft. from N line and 660 ft. from W line of Sec. 10, Blk. 45, Twp. 1n, T.&P. Sur. ..... S.D. 727 ft.

Harrison et al's No. 1 Addis, 990 ft. from N line and 2,200 ft. from W line of Sec 35, Blk. 43, Twp. 2s, T.&P. Sur. ..... S.D. 3,836 ft.

Harrison et al's No. 3 Addis, 1,650 ft. from N line and 2,300 ft. from W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ..... Location.

Honolulu Oil Co. et al's No. 1 Kloh, 660 ft. from E and 1,980 ft. from S of Sec. 33, Blk. 44, Twp. 2s, T.&P. Sur. ..... Drlg. 1,600 ft.

Humble Oil & Ref. Co.'s No. 1 Thomas J. Martin, 330 ft. from N and 440 ft. from E line of Sec. 38, Blk. 43, T.&P. Sur. ..... Cmtd. back to 4,218 ft.; T.D. 4,318 ft.; waiting on cmt. to set.

Humble Oil & Ref. Co.'s No. 2 E. J. Jones, 660 ft. from S line and 1,988 ft. from the W line of Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ..... Drlg. 1,500 ft.

Landreth Prod. Co.'s No. 2 O. B. Holt, 660 ft. from S and E lines of Sec. 15, Blk. 43, Twp. 1n, T.&P. Sur. ..... Cellar.

Landreth Prod. Co. and Llano Oil Co.'s No. 2 O. B. Holt, 1,980 ft. from W and 1,980 ft. from N, Sec. 20, Blk. A, P.S.L. Sur. ..... Drlg. 4,336 ft.; 1,500 ft. of oil in hole.

Landreth-Llano Oil Co.'s No. 3 Holt, 660 ft. from N line and 660 ft. from W line of Sec. 20, Blk. A, P.S.L. Sur. ..... Set csg. at 4,009 ft.

McCurdy et al's No. 1 Foster, 330 ft. from S line and 440 ft. from W line of Sec. 36, Blk. 43, Twp. 2s, T.&P. Sur. ..... Drlg. 1,160 ft.

Moran Drlg. Co.'s No. 1 Smith, 330 ft. from N line, 330 ft. from W line of Sec. 12, Blk. 43, Twp. 1s, T.&P. Sur. ..... S.D. 4,425 ft.

Shell Pet. Corp.'s No. 2 Jones, 660 ft. from S line and 1,980 ft. from E line, Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ..... Bldg. rig.

Skelly Oil Co.'s No. 1 Addis, 990 ft. from N line, 2,200 ft. from E line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ..... Flowing 36 bbls. of oil per day through tubing; T.D. 4,375 ft.; plugged back to 4,355 ft.; will acidize.

Stanolind O. & G. Co.'s No. 3 E. F. Cowden, 2,275½ ft. E and 330 ft. from S line, Sec. 26, Blk. 43, Twp. 2s, T.&P. Sur. ..... Drlg. 3,890 ft.

Stanolind Oil & Gas Co.'s No. 5 J. M. Cowden, 660 ft. from N and 1,980 ft. from E line of Sec. 34, Blk. 43, Twp. 1s, T.&P. Sur. ..... Drlg. 4,397 ft.

Fred Turner, Jr.'s No. 1-C F. V. Addis, 1,650 ft. from the N line and 2,200 ft. from the W line of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ..... Drlg. 3,866 ft.

Fred Turner's No. 2-A Addis, 2,310 ft. from N and 440 ft. from E of Sec. 35, Blk. 43, Twp. 2s, T.&P. Sur. ... Cellar.

FISHER COUNTY

Condor Pet. Co.'s No. 1 Herring, 450 ft. from S and 330 ft. from W line of Sec. 192, Blk. 1, B.B.B.&C. Sur. ..... Rig up.

Condor Pet. Co.'s No. 2 Wilson, 640 ft. from N and 2,310 ft. from W line of Sec. 6, Blk. R, W. E. Richardson Sur. ..... Cellar.

Cranfill & Reynolds' No. 3 J. H. Young, 330 ft. W and 330 ft. S of NE cor. of survey, Sec. 208, B.B.B.&C. Sur. ..... Drlg. 3,010 ft.

Merry Bros. and Perini's No. 1 J. J. Steele, 330 ft. E and 150 ft. N of SW cor. NE Sec. 210, B.B.B.&C. Sur. ..... Swabbed 500 bbls. in 24 hrs.; treated with acid; T.D. 3,190 ft.

E. L. Smith Oil Co.'s No. 1 fee, 450 ft. from S and 330 ft. from E. Sec. 203, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,810 ft.

Rosser & Pendleton's No. 2 Frank Steele, 1,470 ft. from S and 990 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,415 ft.

Sinclair Prairie Oil Co.'s No. 3 Frank Steele, 990 ft. from N and 330 ft. from E line of Sec. 72, Blk. 1, H.&T.C. Sur. ..... Drlg. 2,330 ft.

Stanolind Oil & Gas Co.'s No. 3 F. Steele, 660 ft. from S and 2,310 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... S.D. 3,185 ft.

Stanolind Oil & Gas Co.'s No. 4 Steele, 1,170 ft. from S and 1,650 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,700 ft.

Southern's No. 1 King, 660 ft. from N and 330 ft. from W line of SW Sec. 193, B.B.B.&C. Sur. ..... Drlg. 2,525 ft.

Stanolind Oil & Gas Co.'s No. 5 Steele, 1,170 ft. from S and 990 ft. from W line of Sec. 210, Blk. 1, B.B.B.&C. Sur. ..... Location.

Texas Inland Oil & Gas Co.'s No. 1 First National Bank of Hamlin, 1,980 ft. from N and 990 ft. from W, Sec. 191, Blk. 1, B.B.B.&C. Sur. ..... S.D. 3,107 ft.

Texas Co.'s No. 4 T. A. Jean, 990 ft. from N and E lines of Sec. 201, Blk. 1, B.B.B.&C. Sur. ..... Drlg. 2,620 ft.

GLASSCOCK COUNTY

Empire Gas & Fuel Co.'s No. 2 Hall, 330 ft. from N and W lines of Sec. 21, Blk. 33, Twp. 2s, T.&P. Sur. ..... Waiting on cmt. to set; T.D. 2,060 ft.

John I. Moore et al's No. 1 J. S. McDowell, 1,980 ft. from N line and 660 ft. from E line of Sec. 22, Blk. 34, Twp. 2s, T.&P. Sur. ..... Bldg. derrick.

Noble Drlg. Co.'s No. 1 Edwards, 2,310 ft. from W and 330 ft. from S of Sec. 17, Blk. 33, Twp. 2s, T.&P. Sur. ..... Drlg. 500 ft.

Simms Oil Co.'s No. 1 W. P. Edwards, 330 ft. from S and E lines of Sec. 18, Blk. 33, Twp. 2s, T.&P. Sur. .. Location.

Simms Oil Co.'s No. 2 W. P. Edwards, 330 ft. from S and 990 ft. from E of Sec. 18, Blk. 33, Twp. 2s, T.&P. Sur. ..... Location.

HOWARD COUNTY

L. C. Harrison et al's No. 2 Texas Land & Mortgage Co., 2,310 ft. from E line and 330 ft. from the S line of Sec. 4, Blk. 30, Twp. 1s, T.&P. Sur. ..... Location.

Humble Oil & Ref. Co.'s No. 3 Settles, 990 ft. from W and 330 ft. from S, Sec. 132, Blk. 29, W.&N.W. Sur. ... Drlg. 2,400 ft.; 1,300 ft. of oil in hole.

Merrick & Lamb's No. 11 Chalk, 2,310 ft. from N line and 990 ft. from W line of Sec. 125, Blk. 29, W.&N.W. Sur. ..... Cmtd. csg.; T.D. 1,592 ft.

Permian Pacific Pet. Co.'s No. 1 Cappa, 330 ft. from SW cor. of Sec. 17, Blk. 29, Twp. 1n, T.&P. Sur. ..... Location.

Plymouth Oil Co.'s No. 10 Kloh, 660 ft. from S line and 660 ft. from W line of Sec. 5, Blk. 32, Twp. 2s, T.&P. Sur. ..... Rig up.

Joe Rusk et al's No. 3 G. M. Dodge, 330 ft. from the N line, 330 ft. from the E line, Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ..... Moving in machine.

Schermerhorn Oil Co.'s No. 8 Kloh, 1,650 ft. from S and 330 ft. from W. Sec. 13, Blk. 23, Twp. 2s, T.&P. Sur. ..... Swabbing to test; T.D. 2,405 ft.

Sinclair Prairie Oil Co.'s No. 1 Perry Jones, 2,310 ft. from W and 330 ft. from N, Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ..... S.D. 818 ft.

Sinclair Prairie Oil Co.'s No. 10 Dodge, 2,310 ft. from S and 330 ft. from E, Sec. 1, Blk. 30, Twp. 1s, T.&P. Sur. ..... T.D. 2,803 ft.; swabbing and cleaning out.

Sinclair Prairie Oil Co.'s No. 12 Dodge, 330 ft. from S line and 2,360 ft. from W line, Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. ..... Cellar.

Sloan & Lewis' No. 1 Daniell, 2,475 ft. from E and 330 ft. from S of Sec. 13, Blk. 31, Twp. 1n, T.&P. Sur. ... Rig up.

Southern Oil Co.'s No. 1 Denman, 2,310 ft. from N line and 330 ft. from W line of Sec. 10, Blk. 30, Twp. 1s, T.&P. Sur. ..... Cleaning out after shot; T.D. 2,818 ft.

Sun Oil Co.'s No. 6 Phillips, 1,650 ft. from S and 330 ft. from E, Sec. 14, Blk. 33, Twp. 2s, T.&P. Sur. ..... Drlg. 1,274 ft.

Sun Oil Co.'s No. 6-A Hart Phillips, 1,700 ft. from S line and 330 ft. from E line of Sec. 14, Blk. 33, Twp. 2s, T.&P. Sur. ..... Location.

IRION COUNTY

Williams-Short's No. 1 Gentry, 3,300 ft. from N line and 2,080 ft. from W line of Sec. 1, Blk. 3, H.&T.C. Sur... S.D. 835 ft.

JONES COUNTY

C. P. Campbell's No. 3 Herndon, 1,450 ft. from S line and 800 ft. from W line, Sec. 6, M.E.P.&P. Sur. ..... S.D.; T.D. 2,475 ft.

Clay & Lancaster's No. 2 Brewer, 700 ft. S and 150 ft. E of NW cor. of J. W. Martin Sur. ..... Rig up and S.D.

Clifton ¾ Brazelton et al's No. 1 Cassey, 200 ft. from N and W lines of SE cor. of Sec. 15, Blk. 15, T.&P. Sur. ..... Location.

Elmer Close et al's No. 1 A. B. Faulks, 330 ft. from N line and 330 ft. from W line of Subdiv. No. 27, Henry Millard Sur. ..... S.D. 1,400 ft.

Condor Pet. Co.'s No. 2 Sayles, 650 ft. from N line and 960 ft. from W line of Sec. 3, Blk. 20, T.&P. Sur. ... Derrick.

Guthrie & Lancaster's No. 1-B Campbell, 330 ft. from N and 2,276 ft. from E line of Sec. 15, Blk. 19, T.&P. Sur. ..... Location.

C. C. Julian Rec.'s No. 4 Swan, 2,160 ft. from N line and 1,320 ft. from W line, I. Miley Sur. No. 231 .... Drlg. 2,100 ft.

Knight, Baker and Pardue's No. 1 A. W. Hill, 640 ft. from N line and 690 ft. from E line of Lot No. 1, Blk. 4, A. W. Hill Sur. ..... Drlg. 1,830 ft.

T. R. Simmons' No. 2 Reynolds, 1,440 ft. from S and 300 ft. from E line of Subdiv. No. 2, A. W. Hill Sur. No. 4 ..... Location.

Southern Oil Corp.'s No. 2 Williams, 330 ft. from S and W line of Sec. 17, Blk. 19, T.&P. Sur. ..... Machine.

Texas Inland Oil Co.'s No. 1 J. E. Sellers, 200 ft. from NE of NW cor. of W. Dick Sur. No. 241, Abst. No. 167 ..... Location.

LOVING COUNTY

R. L. Allen's No. 2 fee, 4,290 ft. from NE line, 990 ft. from SE line, Sec. 32, Blk. 33, H.&T.C. Sur. ..... Location.

R. L. Allen's No. 3 fee, 4,290 ft. from NE line, 990 ft. from NW line, Sec. 32, Blk. 33, H.&T.C. Sur. ..... Location.

R. L. Allen's No. 4 fee, 4,290 ft. from NE line, 330 ft. from NW line, Sec. 32, Blk. 33, H.&T.C. Sur. ..... Location.

The California Oil Co.'s No. 3 Reagan-McElvain, 330 ft. from NW and SW lines of Sec. 84, Blk. 1, W.&N.W. Sur. ..... Rig up.

Eppenauer Drlg. Co.'s No. 2 Hammill & Ellis, 410 ft. from NW and 790 ft. from NE lines of Sec. 3, Blk. 1, W.&N.W. Sur. ..... Cellar.

William Little's No. 1 Reichard & Dehle, 1,320 ft. from NE and 1,120 ft. from SE line of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Running csg.; T.D. 4,072 ft.

H. W. Martin's No. 4 Wheat, Ramsey, 990 ft. from SE and SW lines of Sec. 32, Blk. 1, W.&N.W. Sur. ..... Rig up.

Sinclair Prairie Oil Co.'s No. 2 Bell, 410 ft. from SE and 1,025 ft. from NE of Sec. 91, Blk. 1, W.&N.W. Sur. ..... Drlg. 3,425 ft.

Texas Pacific Coal & Oil Co.'s No. 1 Carmine, C of SE of SW of Sec. 40, Blk. 54, Twp. 1, T.&P. Sur. ..... Drlg. 3,930 ft.

PECOS COUNTY

Mack T. Anderson's No. 1 McKenzie, 660 ft. from S line and 660 ft. from W line of Sec. 1, Blk. 604 ..... Location.

California Oil Co.'s No. 14 Mrs. M. A. Smith Lease No. 2, 2,028 ft. from the S line and 1,650 ft. from the E line of Sec. 35, Blk. 194, H.&T.C. Sur. ..... Drlg. plug; T.D. 1,220 ft.

Cardinal Oil Co.'s No. 17-E Tippett, 150 ft. from E line of W half and 720 ft. from N of No. 5-E, Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Waiting on orders; T.D. 481 ft.

Cardinal Oil Co.'s No. 18 J. H. Tippett, 350 ft. from N and 531 ft. from W of the SE cor. of the W half of Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... T.P. 528 ft.; T.D. 540 ft.; plugged back to 535 ft.

Culberson Bros.'s No. 15-B Monroe, 725 ft. from N line and 1,380 ft. from E line of Sec. 39, Blk. 194, G.C.&S.F. Sur. ..... Location.

Humble Oil & Ref. Co. and Planning Pet. Co.'s No. 1 J. L. Nutt, 2,960 ft. from the N line and 890 ft. from the E line of Sec. 16, Blk. 135, T.&St.L. Sur. ... Drlg. 2,020 ft.

Humble Oil & Ref. Co.'s No. 1 White, Baker, 1,320 ft. from N and E lines of Sec. 44, Blk. Z, T.C. Sur. ..... Coring 3,694 ft.

Mid-Kansas Oil & Gas Co.'s No. 18 Smith-Taylor, 1,296 ft. from S line, 1,890 ft. from W line, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 24 Smith-Taylor, 250 ft. W of S half of Turner Tract No. 1, Sec. 33, Blk. 194, G.C.&S.F. Sur. ..... Road.

Mid-Kansas Oil & Gas Co.'s No. 5 Fred Turner, Jr., 3068 ft. from N and 55 ft. E of N half of Tract No. 1, Fred Turner Sur. ..... Testing 1,420 feet.

Mid-Kansas Oil & Gas Co.'s No. 25 Smith-Taylor, 344 ft. W of SE cor. of S half of Turner Trace No. 1, Sec. 33 ..... S.D. 750 ft.

Mid-Kansas Oil & Gas Co.'s No. 26 Smith-Taylor, 395 ft. S and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 1 Turner, 250 ft. from N line and 250 ft. from W line of Turner Sur. No. 3.. S.D. 590 ft.

Mid-Kansas Oil & Gas Co.'s No. 2 Fred Turner, 525 ft. from S line and 500 ft. from W line of Tract No. 2.. Drlg. 1,462 ft.

Mid-Kansas Oil & Gas Co.'s No. 12-H Yates, 408 ft. S of N line of Sec. 32 and 344 ft. W of SE cor. of S half of Tract No. 1 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 13-H Yates, 408 ft. S of N line of Sec. 32 and 344 ft. E of SE cor. of S half of Tract No. 1 ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 38-A Yates, 250 ft. E and 205 ft. S from the NE cor. of Turner Tract No. 3 in Sec. 34½, I. G. Yates Sur. ..... Location.

Mid-Kansas Oil & Gas Co.'s No. 39-A Yates, 150 ft. N and 250 ft. W of the NW cor. of Turner tract No. 4, in Sec. 34½, I. G. Yates Sur. ..... Cellar.

Mid-Kansas Oil & Gas Co.'s No. 40-A Yates, 344 ft. from E line and 395 ft. from N of SE cor. of S half of Turner Tract No. 1 ..... S.D. 680 ft.

Mid-Kansas Oil & Gas Co.'s No. 33-B Yates, 1,010 ft. from S line and 500 ft. from W line of Sec. 61, I.&G.N. Sur. ..... Drlg. 500 ft.

Mid-Kansas Oil & Gas Co.'s No. 34-B Yates, 1,088 ft. from N line and 498 ft. from W line of Sec. 61, I.&G.N. Sur. ..... Rig up.

Simms Pet. Co.'s No. 2 A. J. Devlin, 330 ft. from the N line and 330 ft. from the E line of the most easterly NE cor. of Sec. 2, John D. Duval Sur., Abst. No. 2,524 ..... Location.

REAGAN COUNTY

E. P. Kirschner and White's No. 1 W. A. White and McIntosh, 720 ft. from E and 800 ft. from N of Sec. 1,223, E.L.R.R. Sur. ..... Drlg. 2,100 ft.

REEVES COUNTY

Grisham-Hunter Corp.'s No. 1 fee, 1,320 ft. from N line, 1,320 ft. from the E line of Sec. 10, Blk. 50, Twp. 3, T.&P. Sur. ..... Location.

Hugo Freels' No. 1 B. Greenman, 330 ft. from NE line and 231 ft. from SE line of Sec. 31, Blk. 2, H.&G.N. Sur. ..... S.D. 3,985 ft.

C. H. Lockhart et al's No. 1 W. D. Johnson, 330 ft. from N line and 330 ft. from W line of Sec. 3, Blk. C-18, P.S.L. Sur. ..... Moving in material.

RUNNELS COUNTY

Agnew & Sons' No. 2 Fowler, 1,155 ft. from S and 150 ft. from W of NE cor. of Blk. 32, N. Travis Sur. .... Drlg. 1,955 ft.

Agnew and Currie's No. 1 H. E. Wade, 2,640 ft. from N line and 330 ft. from E line of Sec. 24, Domingo Diaz Sur. No. 532 ..... Digging cellar.

Anderson et al's No. 1 W. F. James, 330 ft. from N and W lines of Subdiv. No. 20, Norvell Travis Sur. ..... Spudded and S.D.

Castor & Anderson et al's No. 1 W. F. James, 174 ft. from W line of Subd. No. 30, Norvell Travis Sur. No. 532 ..... S.D. 850 ft.

L. L. Evans et al's No. 1 L. P. Woods, 330 ft. from SE line and 200 ft. from SW lines of section, T. Williams Sur. No. 529 (old hole being reworked) ..... Old T.D. 2,485-95 ft.; will treat with acid.

Gelden Pet. Corp.'s No. 3 McMillan, 780 ft. from W and 330 ft. from N of Subdiv. No. 22, N. Travis Sur. No. 532 ..... Cmtd. csg.; T.D. 2,515 ft.

Melrose Oil Co.'s No. 1 L. P. Woods, 150 ft. from NE lines and 3,475 ft. from W line of survey, Willett Holmes Sur. No. 100 ..... S.D. 80 ft.

Roberts Oil Corp.'s No. 1 J. L. King, 660 ft. from N line and 470 ft. from W line of most northerly King tract (old well being drilled deeper) ..... Standing with 2,500 ft. water in hole; old T.D. 3,730 ft.

W. S. Sawyer et al's No. 1 Giesecke, 1,211 ft. from N and 4,606 ft. from E lines of survey, Blk. 131, James Hughes Sur. ..... S.D. 1,200 ft.

Prairie Oil & Gas Co.'s No. 1 T. B. Wade, 2,597 ft. from N and 2,140 ft. from E line of Subdiv. No. 16, Norvel Travis Sur. ..... Drlg. 1,695 ft.

R. Tucker et al's No. 5 McMillan, 250 ft. from N and W lines of that part of Subd. No. 22 in the D. Diaz Sur. ..... Location.

Wahlenmaier Pet. Co.'s No. 1 T. C. Hall, 330 ft. out of SW cor. E.T.R.R. Sur. No. 149 ..... S.D. 2,617 ft. to plug; half full of water 2,390-2,400 ft.

F. D. Williams' No. 1 J. L. Elkins, 2,325 ft. from E and 1,300 ft. N of SW cor. of Blk. 13, but in Blk. 13, N. Travis Sur. No. 533 ..... S.D. 1,500 ft.

SCHLEICHER COUNTY

John M. Cooper et al's No. 1 Bert Page, 1,290 ft. from N line, 1,470 ft. from W line of Sec. 40, Blk. L, G.H.&S.A. Sur. (old well being drilled deeper) ..... Rig burned; T.D. 5,040 ft.

SCURRY COUNTY

Coffield & Guthrie's No. 1 Bryce, 330 ft. from S and W lines of Sec. 133, Blk. 97, H.&T.C. Sur. (old well being drilled deeper) ..... O.T.D. 1,905 ft.

TERRELL COUNTY

H. H. Sides' No. 1 Phelps, 2,157 ft. from N line and 2,482 ft. from the W line of Sec. 5, Blk. 4-A, G. W. Turley Sur. ..... S.D. 5,625 ft.

UPTON COUNTY

Powell-Gap Oil Co.'s No. 1 J. F. Lane, 1,320 ft. from W line of Sec. 1, G.C.&S.F. Sur. ..... Drlg. 1,625 ft.

Gulf Prod. Co.'s No. 103 McElroy, 1,980 ft. from S and 660 ft. from W, Sec. 197, Blk. F, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 9,580 ft.
Texas Pacific Coal & Oil Co.'s No. 1-C J. H. Shirk, 1,650 ft. from S and 330 ft. from W, Sec. 1, Blk. 3-B, M.K.&T. Sur. ..... Drlg. 2,448 ft.
Texas Pacific Coal & Oil Co. and Simms Pet. Co.'s No. 2 J. F. Lane, 990 ft. from the S line and 330 ft. from the W line of Sec. 36, Blk. 1, M.K.&T. Sur. ..... Drlg. 2,420 ft.
Texas Pacific Coal & Oil Co.'s No. 3-B Lane, 330 ft. from E and 990 ft. from S of Sec. 1, Blk. 3, M.K.&T. Sur. ..... Moving in material.
Texas Pacific Coal & Oil Co. and Humble Oil & Ref. Co.'s No. 13 J. H. Shirk, 990 ft. from the S line and 330 ft. from the E line of Sec. 1, Blk. 3, M.K.&T. Sur. ..... Location.
Theabotal Oil Co.'s No. 2 J. F. Lane, 1,650 ft. from N and 990 ft. from E of Sec. 36, Blk. 1, M.K.&T. Sur. ..... S.D. 250 ft.
Williams & Williams Drlg. Co.'s No. 1 Robbins, 1,600 ft. from S and 1,900 ft. from E, Sec. 4, G.C.&S.F. Sur. ..... Fishing 1,987 ft.

VAL VERDE COUNTY

South-Western Exploration Co.'s No. 1 E. K. Fawcett, 2,310 ft. from S and 2,310 ft. from E, Sec. 14, Blk. L, G.C.&S.F. Sur. ..... Rig up.

WARD COUNTY

Alexander's No. 1 Richter, 1,650 ft. from NW, 1,170 ft. from NE line of Sec. 27, Blk. 33, H.&T.C. Sur. ..... S.D. 1,460 ft.
Alpine Oil & Dev. Co.'s No. 1 Johnson, 990 ft. from NE and 1,321 ft. from SE of Sec. 10, Blk. 32, H.&T.C. Sur. ..... S.D. 2,246 ft.; pumped 3 bbls. of oil in 24 hrs.
Atlantic Oil & Prod. Co.'s No. 15 Johnson, 330 ft. from SE line and 1,650 ft. from NE line of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Waiting on proration gauge; T.D. 2,535 ft.
Atlantic Oil & Prod. Co.'s No. 16 W. D. Johnson, 320 ft. from NE and 330 ft. from NW lines of Sec. 9, Blk. 34, H.&T.C. Sur. ..... Rig up.
L. G. Bradstreet et al's No. 1 Lee Monroe, 2,310 ft. from NE and 330 ft. from SE lines of Sec. 77, Blk. 34, H.&T.C. Sur. ..... S.D. 1,037 ft.
California Oil Co.'s No. 5 York, 1,650 ft. from S and 990 ft. from SW, Sec. 10, Blk. 34, H.&T.C. Sur. ..... Running tubing; T.D. 2,526 ft.
California Oil Co.'s No. 6 J. F. York, 2,310 ft. from the NW line and 990 ft. from the SW line of Sec. 10, Blk. 34, H.&T.C. Sur. ..... Cmtd. csg.; T.D. 2,310 ft.
California Oil Co.'s No. 2 Durgin, 330 ft. from SW and 330 ft. from SE of Sec. 15, Blk. 34, H.&T.C. Sur. ..... Rig up.
S. Caprito et al's No. 3 John B. Bennett, 330 ft. from the NE line and 330 ft. from the SE line of Sec. 16, Blk. 34, H.&T.C. Sur. ..... S.D. 2,147 ft.
C. C. Duffey et al's No. 1 Llano-Sloan, 1,650 ft. from NW and NE lines of Sec. 24, H.&T.C. Sur. ..... Moving in.
Gibraltar Oil Co.'s No. 1 Richter, 1,170 ft. from SW and 1,650 ft. from NW lines of Section 23, Blk. 34, H.&T.C. Sur. ..... Testing; T.D. 2,567 ft.
Gulf Prod. Co.'s No. 42 O'Brien, 2,310 ft. from N and 330 ft. from S, Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 2,673 ft.
Gulf Prod. Co.'s No. 26 Hutchins, 889 ft. from N line and 440 ft. from W line of Sec. 7, Blk. O, G.M.M. B.&A. Sur. ..... Swabbed and flowed 178 bbls. in 14 hrs.; T.D. 2,733 ft.
Gulf Prod. Co.'s No. 27 Hutchins, 2,310 ft. from N line and 330 ft. from W line of Sec. 4, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,560 ft.
Gulf Prod. Co.'s No. 43 O'Brien, 2,310 ft. from N line and 990 ft. from W line, Sec. 17, Blk. F, G.M.M. B.&A. Sur. ..... Drlg. 2,694 ft.
Gulf Prod. Co.'s No. 44 O'Brien, 2,310 ft. from N line, 330 ft. from W line of Sec. 17, Blk. F, G.M.M.B.&A. Sur. ..... Drlg. 1,975 ft.
Gulf Prod. Co.'s No. 45 O'Brien, 1,650 ft. from S line and 330 ft. from E line of Sec. 17, Blk. F, G.M.M. B.&A. Sur. ..... Rig up.
Gulf Prod. Co.'s No. 46 W. F. O'Brien, 1,650 ft. from S and 990 ft. from E of Sec. 17, Blk. F, G.M.M. B.&A. Sur. ..... Cellar.
Humble Oil & Ref. Co.'s No. 2 Louis Richter, 1,650 ft. from the NW line and 1,470 ft. from the SW line of Sec. 23, Blk. 34, H.&T.C. Sur. ..... Drlg. 2,550 ft.
Jack Leidecker's No. 2 Archenhold, 2,310 ft. from NE and 2,310 ft. from SE, Sec. 33, Blk. 5, H.&T.C. Sur. .. Cleaning out; T.D. 3,068 ft.; flowed 55 bbls. in 8 hrs.
Jack Leidecker et al's No. 1 Shell-Sloan, 990 ft. from NE and 330 ft. from NW of Sec. 15, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,103 ft.
Rector Oil Co.'s No. 1 Lee Monroe, 660 ft. from NE and 660 ft. from SE of Sec. 62, Blk. 33, H.&T.C. Sur. .. S.D. 4,649 ft.
Simms Oil Co.'s No. 1 Mason, 2,310 ft. from SE and SW lines of Sec. 14, Blk. 34, H.&T.C. Sur. ..... T.D. 2,456 ft.; will shoot.
Simms Oil Co.'s No. 1 W. D. Johnson, 330 ft. from the NE and SE lines of Sec. 28, Blk. 34, H.&T.C. Sur. ... Rig up to deepen; T.D. 2,580 ft.
Sinclair Prairie Oil Co.'s No. 4 Archenhold, 2,310 ft. from NW line and 2,310 ft. from SW line of Sec. 33, Blk. 5, H.&T.C. Sur. ..... Running tubing; T.D. 3,059 ft.
Sinclair Prairie Oil Co.'s No. 5 Archenhold, 2,310 ft. from SE and 2,310 ft. from SW of Sec. 33, Blk. 5, H.&T.C. Sur. ..... Material on ground.
Tex-Mex Pet. Corp. et al's No. 2 Llano-Sloan, 990 ft. from NW and 2,310 ft. from SW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Drlg. 2,655 ft.; 500 ft. of oil in hole.
Tex-Mex Pet. Corp.'s No.2-B Shell-Sloan, 2,310 ft. from NE and 990 ft. from NW, Sec. 16, Blk. 5, H.&T.C. Sur. ..... Cellar.
Tex-Mex Pet. Corp. et al's No. 3 Cal-Archenhold, 990 ft. from NE and 330 ft. from SE, Sec. 33, Blk. 5, H.&T.C. Sur. ..... S.D. 2,295 ft.
Tex-Mex Oil Co.'s No. 3-B Shell-Sloan, 1,650 ft. from NE and 330 ft. from NW lines of Sec. 16, Blk. 5, H.&T.C. Sur. ..... S.D. 250 ft.
Westex Oil Co.'s No. 1 Cynthia Monroe et al, 330 ft. from SE and 330 ft. from SW lines of NE 80 acres of Sec. 2, J. V. Borders Sur. ..... Rig up.

WINKLER COUNTY

Colonial Oil Co.'s No. 4 Amerada-Scarborough 990 ft. from N line and 990 ft. from E line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Drlg. 255 ft.
Magnolia Pet. Co.'s No. 4 Scarborough, 1,650 ft. from N line and 330 ft. from W line of Sec. 1, Blk. 77, P.S.L. Sur. ..... Hole bridged after shot; T.D. 3,050 ft.
Magnolia Petroleum Co.'s No. 2 Walton, 330 ft. from N and 330 ft. from E, Sec. 19, Blk. 74, P.S.L. Sur. ..... Drlg. 2,545 ft.
Magnolia Pet. Co.'s No. 5 Scarborough, 1,650 ft. from N line and 370 ft. from E line of Sec. 18, Blk. 74, P.S.L. Sur. ..... S.D. 160 ft.
McCurdy & Easter's No. 1 Scarborough, 1,650 ft. from W and 2,310 ft. from S, Sec. 1, Blk. 77, P.S.L. Sur. ... Rigging up and S.D.
Sid Richardson's No. 2-D Scarborough, 2,310 ft. from E line and 990 ft. from S line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Fishing; T.D. 2,719 ft.
Sid Richardson's No. 5-A Scarborough, 330 ft. from W and 190 ft. from S, Sec. 1, Blk. 32-C, P.S.L. Sur. ..... Moving in machine.
Sid Richardson's No. 1-B Tidal-Scarborough, 990 ft. from S line, 330 ft. from W line, Sec. 4, Blk. C-32, P.S.L. Sur. ..... Cmtd. csg.; T.D. 2,601 ft.
Sid Richardson's No. 1-D Scarborough, 990 ft. from N line and 1,650 ft. from E line of Sec. 18, Blk. 74, P.S.L. Sur. ..... Drlg. 3,125 ft.
Sinclair Prairie Oil Co.'s No. 1-C Scarborough, 2,310 ft. from W and 102½ ft. S of SE cor. Sec. 1, Blk. 32-C, P.S.L. Sur. ..... Fishing for tools after being shot; T.D. 3,035 ft.
Sinclair Prairie Oil Co.'s No. 2-C State-Scarborough, 102 ft. N and 1,650 ft. W of NE cor. of Sec. 1, Blk. 77, P.S.L. Sur. ..... Rig up.
Tide Water Oil Co.'s No. 2 Scarborough, 105 ft. from S and 990 ft. from E of Sec. 1, Blk. C-22, P.S.L. Sur. .. Location.

Wildcat Operations in Texas Panhandle

CARSON COUNTY

Company, well, farm name, section and block— Remarks:

American Ref. Co.'s No. 11 Burnett, 745 ft. from E line, 802 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.
American Ref. Co.'s No. 12 Burnett, 1,145 ft. from E line, 802 ft. from S line, Sec. 115, Blk. 5, I.&G.N. Sur. ..... Location.

CHILDRESS COUNTY

Humble Oil & Ref. Co.'s No. 1 B. P. Smith, 1,327 ft. from S line and 1,327 ft. from E line of Sec. 27, H.&G.N. Sur., Blk. 9 ..... Drlg. 140 ft.

DALLAM COUNTY

Eben Warner's No. 1 Jarbie, 1,520 ft. from S line, 415 ft. from W line, Sec. 2, B.&B. Sur. ..... Drlg. 3,000 ft.

GRAY COUNTY

Anderson & Bean's No. 3 J. C. Vollmert, 330 ft. from S line, 330 ft. from E line, SW Sec. 140, I.&G.N. Sur., Blk. 3 ..... Cellar.
British American Oil Co.'s No. 5 J. L. Phillips, 1,320 ft. S, 330 ft. W of the NE cor. W½ E½ Sec. 127, Blk. 4, I.&G.N. Sur. ..... Testing; T.D. 3,278 ft.
British American Prod. Co.'s No. 6 Phillips, 1,259 ft. from S, 330 ft. from W lines of W½ E½ Sec. 127, Blk. 3, I.&G.N. Sur. ..... Drlg. 3,073 ft.
Cambrian Oil Co.'s No. 2 L. H. Webb, 990 ft. from N line, 330 ft. from E line of E½ NE Sec. 62, Blk. 25, H.&G.N. Sur. ..... Rig up.
Coleman et al's No. 1 W. B. Henry, 330 ft. from S line and 330 ft. from W line of E half SW Sec. 114, I.&G.N. Sur., Blk. 3 ..... Drlg. 2,600 ft.
Continental Oil Co.'s No. 8 Finley-Brown, 990 ft. from E, 330 ft. from S line, Sec. 32, Blk. B-2, H.&G.N. Sur. ..... Moving in material.
Dixon Creek Oil Co.'s No. 1 D. W. Cary, 3,600 ft. from N line, 1,157 ft. from W line of Sec. 114, Blk. 3, I.&G.N. Sur. ..... Rig.
Dixon Creek Oil Co.'s No. 2 M. E. Jackson, 1,320 ft. S, 440 ft. W of the NE cor. SE Sec. 138, I.&G.N. Sur., Blk. 3 ..... Set csg.; T.D. 3,000 ft.
Dyke Oil Co.'s No. 1 Saunders, NW cor. S½ NW Sec. 3, Blk. 1, B.S.&F. Sur. ..... Testing; T.D. 2,948 ft.
Empire Gas & Fuel Oil Co.'s No. 2-C W. C. Archer, 330 ft. from N line and 330 ft. from E line of N half of SW Sec. 139, I.&G.N. Sur., Blk. 3 ..... Drlg. 2,620 ft.
Gulf Prod. Co.'s No. 5 Ellis Cockrell, 330 ft. from N and E lines, S½ Sec. 2, Blk. M-21, T.C.R.R. Sur. .... Location.
Hendron et al's No. 1 Husselby, 330 ft. S and E, SW SW Sec. 11, Blk. A-9, H.&G.N. Sur. ..... Rig.
Magnolia Pet. Co.'s No. 1 Haggard, 330 ft. from S and W lines of NW Sec. 113, Blk. 3, I.&G.N. Sur. ..... Rig up standard tools; T.D. 3,076 ft.
Mazda-Shell's No. 4 Combs-Worley, 990 ft. from N line, 330 ft. from E line, Sec. 35, Blk. 3, I.&G.N. Sur.. Rig.
Phillips Pet. Co.'s No. 8 J. E. Wright, 330 ft. S, 993 ft. E of NW cor. N½ SW Sec. 13, I.&G.N.R.R. Sur., Blk. 3 ..... Flowed 233 bbls. in 9 hrs.; T.D. 2,891 ft.
Phillips Pet. Co.'s No. 1 Faulkner, 330 ft. from N and W lines of SW Sec. 58, Blk. B-2, I.&G.N. Sur. ..... Sidetracking drill pipe; T.D. 2,660 ft.
Phillips Pet. Co.'s No. 3 Myson, 361 ft. from S, 376 ft. from E lines of W½ NW Sec. 87, Blk. 2-B, H.& G.N. Sur. ..... Rig up standard tools; T.D. 2,865 ft.
Reiger et al's No. 1 Furneaux Bros., C SE NW Sec. 99, Blk. B-2, H.&G.N. Sur. ..... Bldg. rig.
Skelly Oil Co.'s No. 1 R. W. Bailey, 640 ft. from S line and 575 ft. from W line of E 240 acres of N half of Sec. 42, H.&G.N. Sur., Blk. 25 ..... Set csg.; T.D. 2,224 ft.
Skelly Oil Co.'s No. 2 Vicars, 330 ft. from S, 1,265 ft. from E lines of SW Sec. 127, Blk. 3, I.&G.N. Sur.... Swbd. 48 bbls.; put on pump; T. D. 3,290 ft.
Stanolind O. & G. Co.'s No. 2-C T. B. Cobb, 330 ft. from N and W lines of SE Sec. 165, Blk. 5, I.& G.N. Sur. ..... Set csg.; T.D. 2,697 ft.
Wilcox Oil & Gas Co.'s No. 25 Combs-Worley, 2,310 ft. from N line and 1,650 ft. from E line of W half of Sec. 35, I.&G.N. Sur., Blk. 3 ..... Set csg.; T.D. 2,840 ft.

HUTCHINSON COUNTY

Huber Petroleum Co.'s No. 2-A J. F. Weatherly, 990 ft. from S line and 330 ft. from W line of E half SE Sec. 26, A.&B. Sur., Blk. Y ..... Rig.
J. R. Phillips et al's No. 1 Tom Lewis, 330 ft. S and W of the NE cor. NE Sec. 7, B.S.&F. Sur., Blk. M-23.. S.D. 2,004 ft.
Phillips Pet. Co.'s No. 1 Ludlum, 250 ft. from N and W lines of a square 50-ac. tract in NE cor. Sec. 3, Blk. M-21, T.C.R.R. Sur. ..... Drlg. 2,878 ft.
Harry Stekoll Oil Prod. Co.'s No. 2 F. Plemons Whittenburg, 330 ft. W, 1,650 ft. from N lines of 160 acres of the W½ Sec. 18, Blk. 47, H.&T.C. Sur. ..... C.O. 2,985 ft.
Trippiehorn Bros.' No. 2 R. C. Ware, 330 ft. from E line and 990 ft. from S line of E half NE Sec. 123, Blk. 4, I.&G.N. Sur. ..... Rig up.

KNOX COUNTY

C. C. Christie's No. 1 Moore, Sec. 87, Blk. 45, H.&T.C. Sur. ..... Location.

MOORE COUNTY

Phillips Pet. Co.'s No. 1 J. C. Wilson, Sec. 157, Blk. T-3, T.&N.O. Sur. ..... Location.

WHEELER COUNTY

H. R. Anderson's No. 1 R. L. Harlan, 330 ft. from N line, 330 ft. from E line of NW Sec. 49, H.&G.N. Sur., Blk. 24 ..... T.D. 1,822 ft.
Mid-Continent Pet. Corp.'s No. 4 J. S. Carwile, 990 ft. from S line, 990 ft. from E line, Sec. 51, Blk. 24, H.&G.N. Sur. ..... Location.
Dumar Oil Co.'s No. 1 P. Ftak, C SE Sec. 99, Blk. 23, H.&G.N. Sur. ..... Location.
Mid-Continent Pet. Corp.'s No. 5 J. S. Carwile, 990 ft. from N and W lines, NE Sec. 51, Blk. 24, H.&G.N. Sur. ..... Location.
Myers & Kennedy's No. 1 Harvey, 660 ft. from S and E lines of NW Sec. 67, Blk. 13, H.&G.N. Sur. ..... Drlg. 1,150 ft.
Parkhurst & Skrivin's No. 1 D'Spain, 330 ft. from N and E lines of E½ SW Sec. 52, Blk. 24, H.&T.C. Sur. ..... Location.
Piney Oil & Gas Co.'s No. 1 A. Plummer, 990 ft. from N line and 330 ft. from E line of E half NE Sec. 45, H.&G.N. Sur., Blk. 24 ..... Drlg. 1,980 ft.

Piney Oil Co.'s No. 1 Mankins, 330 ft. from S and E lines of W½ SE Sec. 54, Blk. 13, H.&G.N. Sur. .....Drlg. 2,010 ft.

Wildcat Operations in Southwest Texas

(Continued from Page 57)

S. E. Gantt's No. 1 A. B. Stephen, 2,650 ft. from SW line, 749 ft. from SE line of P. W. Hays Sur. ....T.D. 450 ft.; shale.
Thos. Gorton's No. 1 Edward Jackel, 600 ft. from N line, 800 ft. from E line of tract in J. Ward Sur. ..T.D. 500 ft.; S.D.
George L. O'Neill's No. 1 Neimann in Juan Montes Sur. No. 6 .....T.D. 1,675 ft.; S.D. for orders.
J. W. Johnson's No. 1 Willow Springs, 150 ft. from N and W lines of lease in B. Munoz Sur. No. 151.....T.D. 2,021 ft.; P.B. 1,940 ft.; S.D. Made SW and some oil.
Fred A. Perrenot's No. 1 Russell, 750 varas from NE line, 54 varas from NW line of 500-ac. tract in Rodriguez Sur. .....T.D. 1,315 ft.; standing.
N. H. Price's No. 1 Barragan, 150 ft. from S and E lines of 60-ac. tract .....T.D. 419 ft.; S.D.; to be comp. by H. E. Lewis.
N. S. Powell's No. 1 M. Sanner, 400 ft. from E line, 5,280 ft. from N line of 128-ac. tract in Ruiz Sur. No. 47 .....S.D. 870 ft.
C. A. Smith's No. 1 Henry Lamb, 750 ft. from N and E lines of Lamb farm, in de la Garza grant .....T.D. 965 ft.; S.D.
A. J. Trawalter's No. 2 fee, 150 ft. from N line and 150 ft. from W line of farm in Stephen Jett Sur., 1 mi. NW of Von Ormy .....T.D. 768 ft.; small gas well.
A. A. Wietzel's No. 1 fee, F. Ricardo Sur. .....Drlg. 1,515 ft.
C. Witherspoon's No. 1 Thos. Dillon, A. G. Mays Sur. ...Location abd.

BLANCO COUNTY

Rogers et al's (formerly Pedernales Pet. Corp.) No. 1 Lester, 550 ft. from N line, 6,100 ft. from W line of Antonio Bendrand Sur. .....S.D. 1,242 ft.

BURLESON COUNTY

Brush & Hays' No. 1 C. W. Young, 150 ft. from SW line and 780 ft. from SE line of 140-ac. tract in Bird Sur. (7 mi. SE of Caldwell) .....T.D. 1,805 ft.; trying to sidetrack, shale at 300 ft.; S.D.

CALDWELL COUNTY

Adams & Lyles' No. 1 S. C. Cole, 330 ft. from W and 824 ft. from S line of lease, Tinney Sur. .....T.D. 2,971 ft.; abd.
S. S. Cargill's No. 2 Damereau, 150 ft. from W line, 450 ft. from N line of D. Cooper Sur. .....Drlg. shale 2,205 ft.
F. H. Etheridge et al's No. 1 Perry, 300 ft. from SE line and 300 ft. from NE line of 27-ac. lease in P. Martinez Sur. (N of Lytton Springs) .....Rigging up.
Wilford Keen et al's No. 1 Wm. Ewalk, 150 ft. from E line and 150 ft. from N line of 126-ac. tract, or 3,650 ft. from N and 1,300 ft. from E lines of Jas. George Sur. (3½ mi. from Lockhart) .....Drlg. 1,107 ft.
J. Edward Mills et al's No. 1 Emma Johnson, 1,650 ft. from N line and 4,250 ft. from W line of Jas. Pinchback Sur. (6 mi. SE of Lockhart) .....T.D. 625 ft.; S.D.
Simmons' No. 1 W. H. Callahan, 1,500 ft. from W and 750 ft. from S lines of 176.6-ac. tract, Miller Sur. (6½ miles SE of Lockhart) .....S.D. 2,250 ft.; top Georgetown at 2,200 ft.; abd.
Webster Oil & Gas Co.'s No. 1 Robinson, 770 ft. S and E from NW cor. of 100-ac. tract in John A. Neill Sur...S.D. 2,290 ft.

CALHOUN COUNTY

Heep Oil Corp.'s No. 1 P. Welder, J. M. Rice Sur. .....Coring 3,072 ft.
Heep Oil Corp.'s No. 2 P. Welder, Day Land & Cattle Co., A-228, center of Sur., 2¾ mi. W of SW of McKinney, 650 ft. NW line and 3,950 ft. SW line of Sur. (4 mi. W of Clark) .....T.D. 915; W.O.C.

COMAL COUNTY

Theo. Hicks et al's No. 1 Gruene, 435 ft. from NE line, 414 ft. from NW line of H. Foster Sur. No. 34, 3 mi. NE from New Braunfels .....Spudded and standing.

DEWITT COUNTY

Humble O. & R. Co.'s No. 1 Kuester, 4,100 ft. from N line, 466 ft. from E line of lease in S.A.&M.G. R.R. Sur. No. 7 .....Drlg. shale 5,500 ft.
Keystone Royalties' No. 1 L. T. Burns, 1,000 ft. from N and W lines of 265-ac. tract in McNutt Sur., Blk. 22 .....Moving in.

DUVAL COUNTY

Cecil Best's No. 1 Parr, 1,320 ft. from SE line and 990 ft. from NE line of Sur. 134 (10 miles W and 2 miles N of San Diego) .....Drlg. 1,117 ft.
Bridwell Oil Co.'s No. 1 Wood Welder, 4,950 ft. from N line and 330 ft. from W line of Sur. 102 .....Location.
Buffalo-Texas Drlg. Synd., Inc.'s No. 1 Escobar, 700 varas from W line, 1,000 varas from N line of 930-ac. tract in Francisco grant .....Drlg. 2,300 ft.
Chiquita Oil Co.'s No. 1 Richardson, 330 ft. from N and E lines of Sec. 5 .....T.D. 935 ft.; S.D.
Continental Oil Co.'s No. 1 R. Driscoll Est., 180 ft. from S, 1,370 ft. from E lines of lease, Sec. 448 ..Drlg. 3,400 ft.
Jones & Carragy's No. 1 J. W. Kidd, 330 ft. from S line and 330 ft. from E line of E 40-ac. of SE of Sur. 56 .....Set surface csg.; W.O.C.
C. G. Mortimer's No. 1 W. R. Peters, 330 ft. from S line, 990 ft. from W line of NE Sur. No. 176 .....T.D. 2,697 ft.; to P.B. and reaming 2,560 ft.
A. H. Richardson et al's No. 1 Drummond, 660 ft. from N and W lines of Sur. No. 392 (north central part of county) .....T.D. 2,504 ft.; abd.
Windsor Oil Co.'s No. 1 B. Peters, 100 ft. from S and 3,209 ft. from E lines of Sur. 34 .....S.D. 310 ft.
Witherspoon et al's No. 1, Richardson Sur. No. 5 ....Drlg. 1,005 ft.
Louis Yeager's No. 1 fee .....T.D. 1,151 ft.; abd.
Louis Yeager's No. 1 Yeager, 694 ft. from W line, 1,527 ft. from S line of Sur. No. 38 .....T.D. 865 ft.; testing.

EDWARDS COUNTY

Love and Evans' No. 1 Steve Brown, 660 ft. from N and E lines of Sec. 66, G.W.T.&P.R.R. Sur., 15 miles W of Rock Springs .....S.D. 3,002 ft.

FRIO COUNTY

Amerada Pet. Co.'s No. 2 Halff & Oppenheimer, begin. at most easterly N cor. of John H. Gibson Sur. No. 16, thence SE along NE line of Sur. 2,100 ft., thence SW at right angles 800 ft. (4 mi. SW of Pearsall) ..Moving in rig.
Humble Oil & Ref. Co.'s No. 2 Woodward .....Top Edwards 2,818 ft.; T.D. 2,828 ft.; testing.

GILLESPIE COUNTY

Powers et al's No. 2 Lindig, 12,700 ft. from S line, 1,333 ft. from W line of Maria Josephine Guerrera Sur. .....Location.

GOLIAD COUNTY

H. H. Weinert's No. 1 Grady Smith, 330 ft. from NW line and 330 ft. from SW line of 142-ac. tract in B. & B. Sur. No. 25 (N part of county) .....Moving in.

GUADALUPE COUNTY

J. E. Clark's No. 1 M. T. Howell, 9,050 ft. from N line of Howell tract and 1,588 ft. S of highway and 200 ft. from W line of 200-ac. tract of Darst Sur. No. 19 .....Location.
M. W. Elser's No. 2 Wells, 1,700 ft. from S line, 200 ft. from W line of Blk. 3, Subd. 1, J. de la Baume Sur. .....Location.
Adolph Seideman's No. 1 Seideman, 280 ft. from NE line, 470 ft. from NW line of Mrs. Adolph Seideman 147.5-ac. tract (Subd. 110) in Antonio Maria Esnaurrizer Sur. No. 11 .....Drlg. 2,542 ft.
L. E. Trout's No. 1 McKee, Green DeWitt Sur. .....Rigging up.
O. W. Killam's No. 1 Max Blume, 300 ft. from W line and 5,050 ft. from S line of 116-ac. tract in John E. King Sur. .....Drlg. 1,000 ft.

HAYS COUNTY

J. C. Crowder's No. 1 Burnett, 2,370 ft. from E line, 1,400 ft. from N line of tract in J. Ingram Sur. ....T.D. 430 ft.; set csg.; S.D.

HIDALGO COUNTY

D. D. Oil Co.'s No. 1 Mrs. L. George, 330 ft. from N and W lines of 40-ac. tract in Share 13, Porcion 41..Location.
Union Sulphur Co.'s No. 1 American Rio Grande L. & L. Co., 400 ft. S and W of NE cor. of Lot 239, Blk. 59 (½ mi. N of Mercedes) .....Set 13-in. csg. at 1,134 ft.; drlg. 2,750 ft.

JIM HOGG COUNTY

Houston Oil Co.'s No. 5 Cartwright, 1,150 ft. from SW line and 1,775 ft. from SE line of J. M. Colchado Sur. .....Location.
A. W. Majors' No. 1 M. Guerra & Son, 2,444 ft. from W line, 3,698 ft. from N line of Sur. No. 369, in SW part of county .....T.D. 2,586 ft.; S.D.

JIM WELLS COUNTY

Magnolia Pet. Co.'s No. 3 Seeligson, 330 ft. from S line and 1,320 ft. W of No. 2 in V. Canales Sur. No. 218..Location.
Plymouth Oil Co.'s No. 1 Cuero Cattle Co., 330 ft. from S and W lines of H.T.&B. Sur. No. 7, 2½ miles W from Alfred .....Rigging up.
Putnam and Bode's No. 1 McCarley, 600 ft. from SE line and 1,500 ft. from NE line of 300-ac. tract, Blk. A, of W. H. Bode Subdivision of Wallace D. Wade Ranch .....Drlg. 1,010 ft.
C. H. Robertson's No. 1 C. Mull, 330 ft. N of N end of division line between Lots 4-A and 5-A of Seefelds farm lots, or 1,300 ft. from W line, 300 ft. from N line of Pointevant Sur. No. 205 .....Drlg. 3,185 ft.

KARNES COUNTY

Campbell et al's No. 1 Ira Coats, 330 ft. from S and E lines of 260-ac. tract in Carlos Martinez Sur. ....T.D. 3,005 ft.; abd.
George Ray's No. 1 Radford, 666 ft. from SW and 3,422 ft. from SE lines of 753-ac. tract in Nichols Sur. (4 miles NE of North Pettus Field) .....Set surface csg.; W.O.C.
C. J. Webster's No. 1 J. B. Cannon, 1,140 ft. from N line, 250 ft. from E line of 80-ac. tract in Lambrano Sur. .....T.D. 1,790 ft.; standing; may deepen to Yegua.

KENDALL COUNTY

Martin's No. 1 Houston, Thomas Leople Sur. No. 761 ....Top black shale 1,028 ft.; T.D. 1,985 ft.; to deepen.
A. P. Pierce's No. 1 Werner, in SW cor. of 40-ac. tract, 150 ft. from S and W lines of J. F. Torrey Sur. ....T.D. 992 ft.; standing.

KERR COUNTY

G. F. Schreiner's No. 3 Love, 1,420 ft. from W line, 1,260 ft. from S line of Sur. No. 1,594 .....Location.
Van Duyn & Moore's No. 1 Nowlin, 2,000 ft. from E line, 2,200 ft. from N line of Jas. R. Bettner Sur. No. 99 .....T.D. 1,040 ft.; standing.

KLEBERG COUNTY

J. S. Brown's No. 1 Antone Dietz, Sec. 7, Hotch estate .. Drlg. 2,580 ft.
Harry Clark's No. 1 V. J. Kivlin, 260 ft. from E line, 400 ft. from S line of Sec. 39, Blk. 8, Kleberg Town & Improvement Co. Sur. .....T.D. 2,350 ft.; reaming; S.O. 2,315-16 ft.; testing.

LASALLE COUNTY

G. O. Ball's No. 1 J. M. Martin, 330 ft. from S and W lines of Martin 485.6-ac. tract, Sur. 683 .....Moving in and S.D.

LEE COUNTY

Blackmar et al's No. 1 Beaty, William Nichols Sur. ....Location abd.
Jas. B. Pederson's No. 1 Turner, David Hudson Sur. ....Rigging up.
H. A. Sherlack's No. 1 Otto, 736 ft. from NW line, 1,310 ft. from NE line of 57.5-ac. tract in Thomas Morrow Sur. .....Rig up and S.D.

LIVE OAK COUNTY

Marine Oil Corp.'s No. 1 J. B. Dunning, 4,500 ft. from E line, 150 ft. from N line of 462-ac. tract in Maria Bridget Kiolin Sur. .....T.D. 5,269 ft.; comp. 3½ mi. ft. gas, 48 bbls. 62 grav. gasoline and 8 bbls. water.

MAVERICK COUNTY

Ollie Wright's No. 1 L. Little, 500 ft. from N line, 3,800 ft. from E line of Potter Sur. No. 65 (10 mi. N of Eagle Pass) .....Drlg. 408 ft.

McMULLEN COUNTY

Bedwell's No. 1 Brown, Sur. No. 54 .....T.D. 771 ft.; S.D.
Al Buchanan's No. 1 Hagist, 990 ft. from E and 330 ft. from N lines of N half of NE Sec. 18 .....Location.
Cotulla's No. 1 Gordon, 330 ft. from N and W lines of S½ of Sec. 127 .....T.D. 1,115 ft.; S.D.
Gleason et al's No. 1 Miles, Chas. Stephens Sur. .....Location.
Henshaw Bros.' No. 1 Lachusa, 2,800 ft. from N and E lines of Sur. No. 478 .....Set surface csg. 40 ft.
Lefevre & Spice's No. 2 Hagist, 2,034 ft. due W of the Lefevre & Spice No. 1 Hagist, Sec. 17 .....Location.
Magnolia Pet. Co.'s No. 1 Kincaid, 5,800 ft. N of Nueces River and 466 ft. E of Sur. No. 199 .....Drlg. 4,050 ft.
W. C. McBride Co.'s No. 1 Hagist, 330 ft. out of the NE cor. of S half of SE Sec. 1 (1½ mi. E of Trinity Drillers' No. 1 Hagist dry hole) .....Location.
Texio Oil Co.'s No. 1 Two Rivers Ranch Co., 330 ft. from N line and 330 ft. from E line of Sec. 81 .....Set surface csg.; W.O.C.
Ike Taylor's No. 1 Wolfe, 330 ft. from N line and 330 ft. from E line of Sec. 81 .....Location.

MEDINA COUNTY

Scoggin & Sanders' No. 1 L. W. Burell, 150 ft. from E line, 1,750 ft. from N line of M. E. Gage Sur. No. 395 .....T.D. 728 ft.; S.D.

MILAM COUNTY

O. H. Birdwell's No. 1 J. R. Bartek, 150 ft. from N line, 180 ft. from W line of 88-ac. tract in J. A. de Pena Sur. .....S.D. 1,510 ft
Marvel Wells' No. 1 fee, J. Liendo Sur. .....Top Austin 1,445 ft.; top Georgetown 2,175 ft.; T.D. 2,221 ft.; abd.

NUECES COUNTY

Clymore Oil Co.'s No. 1 Ingram, 660 ft. from N and E lines of Blk. No. 5, Sec. 6 .....Drlg. 4,812 ft.
Diadem Oil Co.'s No. 1 J. C. Mayo, 1,000 ft. along line from SE cor. in NW direction, thence due N 300 ft. (near Robstown), Sec. 23 .....R.U.
Nuco Oil Co.'s No. 1 Synthia Bluntzer, Herrera Sur., 2,340 ft. from S line, 330 ft. from W line of 639.27-ac. tract .....T.D. 1,988 ft.; S.D.
Sullivan and Texon Royalty Co.'s No. 1 Simmons & Perry, 330 ft. from S and W lines of NE of square 640-ac. section out of SW cor. of Simmons & Perry tract, 3 miles east of Agua Dulce Field .....Fishing 4,228 ft.
United Prod. Co.'s No. 2 Tolbert, 1,250 ft. from S line and 120 ft. from W line of Blk. 9, Sec. 4, Puenticitas grant .....Moving in.

SAN PATRICIO COUNTY

Atkins & O'Neil's No. 1 Welder, 7,898 ft. from E and 317 ft. from S lines of Juan Hart & Sons and John Lucas Sur. (2 miles W of Angelita) .....Drlg. 5,300 ft.
C. B. Bunte's No. 1 J. D. Holland, Sec. 26 of Eaton's Subd., 660 ft. from E and 1,320 ft. from N lines of lease (2 mi. SW of Sinton) .....Tested 24 fourbles S.W. with S.G. 2,846-74 ft., top sand 2,830 ft.; drlg. 5,200 ft.
Carpenter et al's No. 1 Sadler, 300 ft. each way out of SE cor. Blk. 1, Sec. 32, T. Peres Sur. .....T.D. 603 ft.; W.O.C.
DeLange et al's No. 1 Sevior, 150 ft. N of S line, 7,650 ft. E of most southerly W line of Clara Driskol, Sevier, 7,645-ac. tract in Antonio Ramirez Sur., N of Premont area .....S.D. 1,450 ft.
Maxwell et al's No. 1 Sadler (Mud Flats) .....Set surface csg. 600 ft.; W.O.C.

Diadem Oil Co.'s No. 1 J. C. Mayo, 300 ft. from S and 1,000 ft. from E line of Sec. 23, George H. Powell Subd. of the Driscoll ranch (8 of Robstown) ..... Location.
Plymouth Oil Co.'s No. 1 Welder, 4,700 ft. N of Chiltipin Creek, 900 ft. from W line of J. M. and F. Portilla Sur., 1½ miles N from Sinton ..... Top Discorbis 4,100 ft.; T.D. 6,602 ft.; P.B. 5,300 ft.; to core sand 5,400-5,500 ft.

STARR COUNTY

Chas. H. Andrews et al's No. 1 A. Guerra, San Jose grant, 330 ft. from N and 150 ft. from E line of Sec. 6 (NE part of county) ..... T.D. 310 ft.; S.D.
B. & B. Oil Co.'s No. 2 Kelsey Bass, 330 ft. from W and S lines of Blk. 12 of Subd. of Porcions 86 and 87, jurisdiction Camargo ..... Rigged up and S.D.
Dean Bros.' No. 1 M. M. Garcia, 2,150 ft. from S line, 4,600 ft. from W line of Sur. No. 916 ..... Set surface csg.; W.O.C.
Goodwin-Yantis' No. 5 Anna K. Bass, 150 ft. from S and E lines of Blk. No. 10, Sur. No. 3, Porcion 87 ..... Derrick.
Goodwin-Yantis' No. 4-A Kelsey Bass, 1,300 ft. NW of No. 3 in Porcions 86 and 87, Ancient Jurisdiction of Camargo ..... Location.
Great Plains Oil Co.'s No. 1 Sanches, 660 ft. from W line, 330 ft. from S line of SE NW of Sur. No. 344 .. T.D. 3,524 ft.; S.D.
Jeffries-Lambeth Drlg. Co.'s No. 2 Starr County Cattle Co., N of No. 1 in Share 60, Porcion 89 ..... Sand 2,505-18 ft.; D.S. test 2,490-2,510 ft.; 4 thribbles fluid showing oil; T.D. 2,520 ft.; shut in; est. 125 bbls.

W. H. Liber's No. 1 I. Y. Garcia, 1,546 ft. from N line, 962 ft. from W line of 354-ac. tract in Porcion No. 75, jurisdiction of Camargo ..... Drlg. 1,105 ft.
McDonald & Campbell's No. 1 C. C. Bowman, 330 ft. from N and W lines of Blk. 13 ..... Spud and S.D.
Myers, Sullivan & Jenkins' No. 1 Starr County Cattle Co., 330 ft. from N line, 330 ft. from W line, Blk. 62, Porcion 89, Share 60 ..... Cored sand 2,562 ft.; prep. to test.
R. D. Perkins & Hoffman's No. 1 E. A. Peffler, 3,090 ft. from W line, 2,480 ft. from S line of Sur. 933 .... T.D. 1,547 ft.; S.D.
Sioux Oil Co.'s No. 6 Goodrich, 200 ft. from W line and 250 ft. from E line of Blk. 3, Share 5, Porcion 81 ..... T.D. 1,387 ft.; sand 1,385-86 ft.; W.O.C.
Weekley et al's No. 1 Starr County Cattle Co., 330 ft. from S and W lines of Blk. 20, Porcion 89 (1 mi. N of Jeffries' No. 1 Lambeth) ..... Location.

UVALDE COUNTY

Evans & Johnson's No. 1 Farris, J Hammons Sur. ..... Drlg. shale 527 ft.
T. T. Word et al's No. 1 K. S. Truelove, 650 ft. from N line and 3,000 ft. from E line of Daniel Elam Sur. No. 651 (7½ mi. NW of Sabinal) ..... T.D. 200 ft.; S.D.

WEBB COUNTY

French Oil Corp.'s No. 1 Benavides, 330 ft. from S and E lines of SE of NE Sur. No. 706 (10 mi. NW of Bruni) ..... Spud.
Klamor Oil Co.'s No. 1 Cuellar Bros., 1,725 ft. from NE line and 400 ft. from SE line of Share 1, Sur. 2,329 (NE of Bruni) ..... Drlg. 1,250 ft.
L. E. Lockhart's No. 1 B. Eikel, 330 ft. from N line, 360 ft. from E line of Sur. No. 1,673 ..... Drlg. 1,535 ft.
Don E. Megahan et al's No. 1 F. C. Gowdy, 330 ft. from E line, 1,450 ft. from N line of Sur. No. 2,112.. Drlg. 4,096 ft.
Shankel et al's No. 1 Saldivar, Sur. 652 of J. V. Borrego grant ..... R.U.
Weekley Oil Corp.'s No. 1 R. Salvidor, 1,269 ft. from E line and 243 ft. from N line of Sec. 657, Borrego grant (SE part of county) ..... Rigged up and S.D.

WILSON COUNTY

Bidnar & Powell's No. 1 L. C. George, 400 ft. from SE line, 475 ft. from SW line of 86.5-ac. tract in C. Diaz Sur. No. 44 ..... T.D. 1,536 ft.; S.D.
Pfiel & Vogel's No. 1 Gutzeit, Flores grant, 150 ft. N of road and 150 ft. from W line of farm, 7 mi. NW of Floresville ..... S.D. 615 ft.
J. C. Yancey's No. 1 Lissy, D. J. Holt Sur., 1,700 ft. from SE and 6,500 ft. from most westerly SW cor. of survey ..... Spudded and S.D.

WILLIAMSON COUNTY

Atlantic-Pacific Corp.'s No. 1 W. C. Daniel, 500 ft. from SW line, 2,100 ft. from SE line of Washington P. Reese Sur. No. 2 ..... T.D. 638 ft.; S.D.
McLean et al's No. 2 R. C. Miller, 800 ft. to S line, 100 ft. to W line of tract, B. Manlove Sur. ..... T.D. 2,300 ft.; S.D.
G. L. Rowsey, trustee's No. 3 Brochmeyer, 150 ft. out of SW cor. of N 30 acres or 3,400 ft. from SE line and 910 ft. from SW line of H. White Sur. ..... T.D. 950 ft.; comp. 10 bbls. day.
G. L. Rowsey, trustee's No. 2 John Rieger, 4,450 ft. from SE line and 150 ft. from SW line of H. White Sur. ..... T.D. 984 ft.; abd.
G. L. Rowsey, trustee's No. 2 Dabney Bass, H. White Sur. ..... T.D. 778 ft.; S.D.
Taylor Ref. Co.'s No. 4 Brockmeyer, 150 ft. from W line and 1,050 ft. from N line in H. White Sur. .... Moving in.
R. S. Wilson's No. 2 Sing, 300 ft. from SW line, 1,250 ft. from SE line of T. A. Moore Sur. ..... T.D. 581 ft.; abd.

ZAPATA COUNTY

Danvers & Harrison's No. 1 Trevino, 150 ft. from NW and SE lines of SW¼ of Share E, Charco Redondo grant ..... Drlg. 815 ft.
French Oil Corp.'s No. 2 M. Garza, center of Blk. 8, Sur. 284 ..... R.U.
O. W. Killam's No. 8 Bruni, 710 ft. from SE line and 100 ft. from SW line of Blk. 53, J. E. Borrego grant. Drlg. 725 ft.
Muckelroy's No. 1 Flores, on NE line and 75 ft. from SE line of Lot 2, Blk. 30, Muckelroy Subd. of Porcion No. 37 ..... Derrick.
Kliener & Hill's No. 8 Gutierres, Share 4, Comitas grant.. T.D. 1,245 ft.; W.O.C.
Joe Palmer's No. 11 S. Vela, 330 ft. from NE and SE lines of Blk. 170, Share 4 of L. Grillo grant, (3 mi. E of Redondo Pool) ..... Moving in.

Southwest Texas Proven Areas

Week Ending April 14

CEDAR CREEK POOL—BASTROP COUNTY

C. H. Herbig et al's No. 1 H. R. Smith (Sallie Voss), A. Lytton Sur., 150 ft. from S line and 750 ft. from W line of 50-ac. tract or 5,000 ft. SW line and 750 ft. NW line of Sur. ..... T.D. 1,690 ft.; S.D.
Marts & Bevins' No. 3 Orgain, Addison Litton Sur. .... Location.

NORTH DALE POOL—BASTROP COUNTY

Chiquita Oil Co.'s No. 1 A. H. Hanna, 150 ft. from SW and SE lines of 180-ac. tract, Joshua Gray Sur. .... Serpentine 2,242-86 ft.; T.D. 2,444 ft.; abd.
Watt L. Saunders' No. 1 Harris, 1,100 ft. from SW line, 2,830 ft. from NW line of John Maximillan Sur. No. 22 ..... Drlg. 2,015 ft.

ECKERT POOL—BEXAR COUNTY

Alamo Nat. Gas Co.'s No. 2 Coreth, 300 ft. SE of Humble's No. 3 Coreth in A. Stafford Sur. ..... T.D. 1,055 ft.; set 6⅝-in. csg.; S.D.
J. F. Harrison's No. 4 F. Gembler, 150 ft. from NW line, 460 ft. from NE line of 88-ac. tract in J. Montes Sur. ..... T.D. 831 ft.; S.D.
S. J. Moore's No. 5 T. W. Masterson, 150 ft. from S line, 175 ft. from W line of 41-ac. tract in Miguel Gortaris Sur. ..... T.D. 736 ft.; 6⅝-in. csg.; S.D.
S. J. Moore's No. 4 T. W. Masterson, 150 ft. from S and W lines of tract in M. Cartari Sur. ..... Drlg. shale 660 ft.

VON ORMY POOL—BEXAR COUNTY

Von Ormy Oil Co.'s No. 2 E. B. Carruth, 515 ft. from W line, 1,970 ft. from S line of 160-ac. tract out of 657-ac. tract in F. Rolen Sur. ..... Drlg. sand 697 ft.

SLICK POOL—DEWITT COUNTY

Slick-Seeligson Corp.'s No. 3 Poetter, 2,840 ft. from SW line and 1,320 ft. from SE line of lease on 591-ac. tract in Marshall County ..... Coring 4,535 ft.

EAGLE HILL POOL—DUVAL COUNTY

Al Buchanan's No. 5 Duval County Ranch Co., 990 ft. from E line, 330 ft. from S line of N½ of Sur. No. 206 ..... T.D. 101 ft.; S.D.
Al Buchanan's No. 6 Duval County Ranch, 660 ft. E of No. 1, Sec. 206 ..... T.D. 1,480 ft.; comp. 33 bbls. day.
Eagle Hill Oil Co.'s No. 1 J. R. Foster, 2,160 ft. from E line and 1,160 ft. from S line of Sur. 206 ..... Location.
Killam's No. 5 Welder-Wood, 4,350 ft. from S line and 5,010 ft. from E line of Sur. No. 102 ..... T.D. 2,490 ft.; abd.

GOVERNMENT WELLS POOL—DUVAL COUNTY

Capps & Smith's No. 6-A Duval County Ranch, 1,430 ft. from SE and 330 ft. from SW lines of SW Sur. No. 574 ..... T.D. 2,435 ft.; sand 2,403-25 ft., sand 2,381-97 ft.; Cole sand 1,745-70 ft.; running tubing.
Cox & Hamon and DeLange's No. 5 Lundell, 330 ft. from S and W lines of SE SW Sur. No. 60 ..... Drlg. 1,052 ft.
Rodney DeLange et al's No. 5 Lundell ..... T.D. 2,252 ft.; comp. 15 bbls. per hour on pump.
Humble Oil & Ref. Co.'s No. 20 Paul White, 2,790 ft. from S and 990 ft. from W line of Sur. No. 58 .... T.D. 2,269 ft.; comp. 14 bbls. per hr. through ¼-in. choke.
L. & R. Oil Co.'s No. 2 Webb, 330 ft. from E and 200 ft. from S lines of 12½-ac. tract, Sur. No. 41 ..... Rigging up.
Magnolia Pet. Co.'s No. 21 Duval County Ranch, 660 ft. E of No. 14 and 660 ft. N of No. 10 on 960-ac. tract in Sec. 208, J. Poitevent Sur. ..... Rigging up.
Magnolia Pet. Co.'s No. 24 Duval County Ranch, 655 ft. N of No. 8 and 314 ft. from E line of Sur. 208.. T.D. 2,332 ft.; comp. 175 bbls.
Magnolia Pet. Co.'s No. 7-A Hahl, 990 ft. from S line and 330 ft. from E line of SE of Sur. No. 45 ..... Location.
Magnolia Pet. Co.'s No. 1 C. E. Hunt, 330 ft. from N line and 330 ft. from W line of SE of Sur. No. 46.... T.D. 2,342 ft.; comp. 75 bbls.
Magnolia Pet. Co.'s No. 1 L. B. Moody, 150 ft. from N and W lines of N half of SW of most easterly Sur. 60 ..... Derrick.
Magnolia Pet. Co.'s No. 14 G. Wendt, 750 ft. from W line and 330 ft. from E line of SE of NW Sur. 14... T.D. 2,321 ft.; comp. 120 bbls.
McKay & Reed's No. 3 State, 330 ft. from S and W lines of Sur. No. 60 ..... T.D. 2,236 ft.; comp. 6 bbls. per hr., ¾-in. choke.
Reynosa Oil Co.'s No. 6-B Duval County Ranch, 660 ft. N of No. 5-B, Sur. No. 363 ..... T.D. 2,278 ft.; comp. 16 bbls. per hr., 9/16-in. choke.
Southwest Drlg. Co.'s No. 1 Hahl, 330 ft. from S and E lines of SW of Sur. 56 ..... Drlg. 105 ft.
Sun Oil Co.'s No. 33 Weiderkehr, 330 ft. from S line, 990 ft. from E line of Sur. No. 359 ..... Location.
Sun Oil Co.'s No. 29 Weiderkehr, 1,650 ft. from W line, 330 ft. from N line of Sur. No. 359 ..... T.D. 2,306 ft.; comp. 500 bbls.
Sun Oil Co.'s No. 48 Weiderkehr, 660 ft. S of No. 47, Sec. 359 ..... Drlg. 900 ft.
Sun Oil Co.'s No. 49 Weiderkehr, 660 ft. S of No. 48, Sec. 359 ..... T.D. 2,278 ft.; comp. 17 bbls. per hr., ¼-in. choke.
Sun Oil Co.'s No. 50 Weiderkehr, 660 ft. S of No. 49, Sec. 359 ..... T.D. 2,266 ft.; set 7-in. csg. 2,245 ft.; W.O.C.
Sun Oil Co.'s No. 51 Weiderkehr, 660 ft. W of No. 12 ... T.D. 2,264 ft.; comp. 60 bbls. day.
Sun Oil Co.'s No. 52 Weiderkehr, 660 ft. S of No. 47 of 2,910 ft. from E line and 2,310 ft. from S line of Sur. No. 359 ..... Location.
Sun Oil Co.'s No. 53 Weiderkehr, 990 ft. from N and E lines of Sur. No. 361 ..... Location.
Texas Co.'s No. 5 fee, Sur. 362 ..... Set 7-in. 2,288 ft.; W.O.C.
Texas Co.'s No. 7 Duval County Ranch fee, 1,650 ft. S and 330 ft. E of NW cor. SE Sec. 362, J. Poitevent Sur. ..... Elev. 518 ft.; drlg. 2,302 ft.
Trapshooter Reilly's No. 1-B C. W. Hahl, 200 ft. from W line, 330 ft. from S line of Blk. 26, Sur. 250 .... Location.

SARNOSA POOL—DUVAL COUNTY

Magnolia Pet. Co.'s No. 2 D. Ruiz, 411 ft. NE of No. 1 and 330 ft. from NW line of SW of Section in Survey 127 ..... Coring 2,407 ft.

KINGSVILLE POOL—KLEBERG COUNTY

Ryals & Bartlett's No. 1 Flato, 150 ft. from N line, 80 ft. from W line of NE SE Sec. 40, of Kleberg Town & Improvement Co. Sur. ..... R.U. and S.D.

LUCAS POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 5 Cartwright, 1,150 ft. SW line and 1,775 ft. SW line of J. M. Colchado Sur. ..... Coring 4,412 ft.

JACOB POOL—McMULLEN COUNTY

Jane Oil Co.'s No. 1 Lark, 150 ft. from S and 100 ft. from W line of Blk. 13 ..... Drlg. 920 ft.
C. R. Kennon's No. 1 Lark, 810 ft. from W line, 150 ft. from N line of 20-ac. tract, Blk. 27, Scrugham Sur. ..... Drlg. 940 ft.
Loma Oil Co.'s No. 18 Jacob ..... T.D. 1,002 ft.; cleaning out.
Loma Oil Co.'s No. 23 Jacob, 660 ft. S of No. 11, 330 ft. from E line of lease, Sur. No. 7 ..... T.D. 1,003 ft.; S.D.
Loma Oil Co.'s No. 25 Jacob, 660 ft. E of No. 24, Sec. 5.. Rigging up.
Texio Oil Co.'s No. 1 Jacob, 4,633 ft. S and 330 ft. W of SW cor. of Sec. 7, G.H.&H. Sur. ..... T.D. 903 ft.; W.O.C.

CUEVITAS POOL—STARR COUNTY

Sun Oil Co.'s No. 5-C M. Guerra & Son, 1,320 ft. NE of No. 4-C La Sacatosa grant ..... Location.

AGUA DULCE—NUECES COUNTY

Camp et al's No. 2 King, 990 ft. S of N line, 330 ft. W of E line of Sec. 24, R. Garza Sur. ..... Top sand 4,045 ft.; D.S. test showed 3½ fourbles salt wtr., some oil and gas.; drlg. 4,630 ft.
Garland Clymore's No. 2 Ollie Purl ..... D.S. test 4,893-4,900 ft., showed 100 ft.; S.W.; drlg. 5,390 ft.

SAXET FIELD—NUECES COUNTY

South Mineral Oil Co.'s No. 1 J. W. Page, E. Villareal Sur., 471 ft. from E line, 160 ft. from S line of 150-ac. tract ..... T.D. 4,079, 4,073-79, D.S. test 5 bbls. oil, 75 lbs. W.P. through ¼-in. choke 5 min.; cleaning out.
United Prod. Co.'s No. 3 Ollie Purl, Peters Subd. No. 2, Sec. 4, Blk. 3, C of Blk. 3 ..... T.D. 4,820 ft.; est. 30,000,000 ft. gas and 150 bbls. oil.

LOS OLMOS POOL—STARR COUNTY

Los Olmos O. & G. Co.'s No. 57 Kelsey Bass, 150 ft. from N line, 568 ft. from W line of SE SW Sec. 6, Porcions 75, 76 and 77 ..... T.D. 640 ft.; standing; depth corrected.

LAUREL POOL—WEBB COUNTY

South Texas Oil Co.'s No. 11 Laurel, 200 ft. from W line and 150 ft. from S line of Blk. 4, Sur. 270 ..... T.D. 2,525 ft.; abd.

BYERSVILLE POOL—WILLIAMSON COUNTY

Otto Stolley's No. 1 Charles L. Byer, beginning at SE cor. of P. Cartwright Sur. SW 4,700 ft. along survey line then 950 ft. SE at right angles in P. Stoddard Sur. ..... T.D. 1,022 ft.; S.D.

JENNINGS POOL—ZAPATA COUNTY

O. W. Killam's No. 32 Cuellar, 1,410 ft. from NW line, 4,628 ft. from NE line of 17-ac. tract ..... Rigging up.
Texas Co.'s No. 44 Measles, 395 ft. S, 77° 33 min. E of No. 39 Cerrito Blanco grant ..... Set 10-in. at 44 ft.; T.D. 1,220 ft.; comp. 20 bbls.
Texas Co.'s No. 45 Jennings, 750 ft. N, 12 deg. 30 ft. E from Jennings' No. 39, in Cerrito Blanco grant ..... Derrick.

Deep Sand Discovery on East Edge of Sour Lake in Hardin County Causing Heavy Play There

By A. C. EASTERWOOD
Gulf Coast Bureau, The Oil and Gas Journal

HOUSTON, Tex., Apr. 16.—Interest throughout the Gulf Coast area during the past week was centered on the new deep sand discovery on the east edge of the old Sour Lake Field in Hardin County. About half a mile east of the old shallow production in the field the new discovered deep sand proved productive the end of the week when the well blew in for estimated 1,000 to 1,500 bbls. daily. Parr and others' No. 1 Benard, which has been shut down for over three weeks after cementing 7-inch casing at 6,886 feet, drilled plugs the latter part of the week and cored 5 feet more of oil sand from 6,944-49 feet and had a good show of oil and gas on the pits. Screen was being run in the hole when it attempted to blow out.

While coming out of hole with drill pipe the well blew in for a good producer and estimates run as high as 1,500 bbls. of oil daily with a great amount of gas. At last report operators were preparing to kill the well and reset screen. Before setting casing the well cored sand showing oil and gas from 6,936-44 feet in the Cockfield horizon, which aroused much interest and has caused the area to be played heavily the past few weeks. It topped the Hockley at 6,457 feet and encountered top of the Dibollensis at 6,884 feet. Steinberger Petroleum Co. has made location for No. 1 Weiss, 150 feet west of Parr's well and 50 feet out of the southeast corner of Block 28, H. B. Williams Survey. Alpha Petroleum Co. is also said to have made locations for No. 1 and No. 2 William Weiss in Section 25 of the H. Williams Survey.

Batson Dome

On the south side of the Batson Dome, Danciger Oil & Refining Co.'s No. 2 Hooks showed water with a rainbow of oil and considerable gas on a test at 4,795 feet. It topped a good-looking sand at 4,782 feet and bottomed hole at 4,795 feet, where screen was set. Late in the week it was preparing to plug back and try to shut off the water.

Steen Drilling Co.'s No. 1 Texas Long Leaf, eastern Montgomery County, will probably start up the early part of the week. It has been shut down since it tested salt water in sand from 6,016-53 feet on a drill stem test.

Cleveland Area

Across the line in northwestern Liberty County, Gulf Production Co.'s No. 2-C Kirby, south of the discovery well in the Cleveland area, was drilling below 8,025 feet. This test is of especial importance as it is to be carried to the Sparta in the lower section of the Cook Mountain. It topped the Crockett member of the Cook Mountain around 7,004 feet.

Gulf's No. 3-C Kirby, south of the discovery well and in the direction of Brown & Wheeler's No. 1 Goldberg dry hole, was drilling 1,057 feet. About 15 miles east and a little south of the Cleveland area, Turnbull & Irwin's No. 1 N. Hildebrandt was drilling below 2,919 feet. This test is about 12 miles north of Dayton, in the W. Whitlock Survey.

Tide Water Oil Co. and Darby Petroleum Co.'s No. 1 Southwestern Lumber Co., on the easternmost flanks of the Texas Conroe trend in Newton County, was drilling at 3,825 feet. South of this well and near the town of Buna, E. L. Smith Oil Co. is reported taking a block on the Jasper and Newton County lines. Geophysical crews have recently worked this area.

Waller County

In southeastern Waller County, where an active lease play has been in progress, Stanolind Oil & Gas Co. has staked location for No. 1 Mary Manner in the center of Section 93, H.&T.C. Survey. This area has been worked extensively by geophysical instruments and in the fall of 1933 had quite an active lease play. Several major companies have acreage in this area and during the past few weeks additional acreage has been taken with prices now said to be ranging up to $120 per acre.

Goose Creek

The newly discovered deep sand at Goose Creek in Harris County is holding much interest and getting considerable activity. Miramar Oil Co.'s No. 1 Hughes, on the north side of the dome, averaged around 437 bbls. daily during the past week, with no water. Total depth is 4,016 feet, or 486 feet higher than Gulf's No. 17-A Tabbs, the discovery well in the 4,500-foot sand. Gulf's No. 17-A Tabbs is still flowing about 170 bbls. daily. Gulf's No. 13 State Land Producers cored sand 4,528-36 feet and late in the week was waiting on cement to set after cementing 7-inch casing at 4,522 feet. Gulf's No. A-23 A. Wright, southeast offset to Sun Oil Co.'s No. 9 McFarland & Geisman, was drilling at 2,822 feet. Sun's producer is making about 100 bbls. daily with about 15 per cent water. Heffner & Moore's No. 1 A. A. Wright, east offset to the Sun well, was coring below 4,602 feet. This well has not yet picked up a good oil sand. East of the Miramar producer, Puckett's No. 1 Scott was drilling below 3,712 feet.

Fort Bend County

Phillips Petroleum Co.'s No. 1 A. E. Holmes, wildcat test about 7 miles northeast of Richmond in Fort Bend County, was drilling at 6,628 feet. The contract was originally 6,000 feet but operators decided to carry it deeper. About 4 miles west of Orchard, O'Connor Dome Oil Co.'s No. 1 Grigor, in the J. S. O'Connor Survey, has been abandoned as dry with total depth at 5,185 feet.

Edwards Drilling Co.'s No. 1 Hanslor in the B. Wickson Survey in the Big Creek area, showed 400 pounds gas pressure in four minutes on a drill stem test with one-quarter inch choke on top and bottom. It had gas sand from 3,108-27 feet and oil sand from 3,187-3,211 feet. Late in the week it was reaming down to test the oil sand. Total depth is 3,211 feet.

Van Vleck Area

At Van Vleck in Matagorda County, Skelly Oil Co. installed a seventeen-sixty-fourths inch choke on bottom of the tubing in No. 1 Cobb and on a 24-hour gauge made 198 bbls. of brown distillate. The 500 bbls. of storage has been filled and late in the week the well was shut in awaiting the erection of additional storage tanks. The area is on the line between Pledger and Buckeye and similar to the high pressure gas wells at Pledger. Total depth is 7,076 feet. United North & South Development Co.'s No. 1 Unit 6 was drilling lime and shale at 8,655 feet, redrilling hole.

Polk County

Over a mile northeast of nearest production at Livingston in Polk County, Gish Oil Corp.'s No. 1 Kingsbury County Holding Corp., was flowing 10 bbls. of distillate per hour. Total depth is 4,242 feet. Owenby's No. 1 Munson has been completed for 78 bbls. per hour through one-quarter inch choke at 4,333 feet. It topped sand at 4,280 feet.

Refugio County

The Bonnie View district in Refugio County seems to be cooling off a bit after recent dry holes drilled in the area. The area has been getting a good lease play with leases selling for as high as $70 per acre. C. B. Bunte's No. 1 Rooke, about 2 miles southwest of Woodsboro and north of Texas Co.'s dry hole, is preparing to spud. Bunte will also drill another important test in the area, in the J. M. and G. Cobian Survey and on the Roache tract, between Texas Co.'s big block and Atkins & O'Neil's dry hole. Heard-Holland Oil Co.'s No. 1 Peck, just north of the original play, cored the Greta sand at 4,524 feet which showed nothing. Late in the week it was shut down.

West of the Greta Field about a quarter mile, Dash & Blanco's No. 1 J. M. O'Brien was preparing to test sand at 4,396 feet. The 7-inch casing was set at 4,386 feet.

Victoria County

In Victoria County, R. L. Shroyer has staked location for No. 1 C. Roos and late in the week was moving in material. This is to be a 6,000-foot test and is 482 feet from north line and 1,666 feet from east line of 100-acre tract in the M. A. Castanan Survey. Gulf, Stanolind, Amerada and Magnolia have protection around the proposed test.

Colorado County

West of Garwood in Colorado County, Coyle and Concord are building derrick to deepen their No. 1 Nelson, discovery gasser for the area. It was completed in July, 1932, for around 50,000,000 to 75,000,000 feet of gas daily with total depth at 4,052 feet.

Brazoria County

Amerada Petroleum Corp. is reported to have selected 7,000 acres out of the 40,000-acre tract of the Houston Farm Lands Development Co. at Rattlesnake Mound in the southeastern part of Brazoria County, and is to start a 6,500-foot test within 90 days. Amerada

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Gulf Coast Fields and Wildcats

Week Ending April 14

DAMON MOUND—BRAZORIA COUNTY

Company, farm and location—	Remarks:
Intercoastal Oil Co.'s No. 11 Wisdom, 350 ft. E of No. 6, Blk. 51, Lot D, A. Darst Sur.	T.D. 2,655 ft.; comp. 100 bbls. day through ¼-in. choke.

MANVEL—BRAZORIA COUNTY

Burton Drlg. Co.'s No. 1 Parker, 40 ft. E and 70 ft. S of SW cor. of Lot No. 28, H.T.&B. Sur. No. 63	S.D. 1,085 ft.
Shell Pet. Corp.'s No. 1 Gubert, 200 ft. from N line and 200 ft. from E line of Blk. 28, C. O'Donnell Sur. No. 74	Material on ground.
Shell Pet. Corp.'s No. 2 Gubert, 268 ft. from N and 325 ft. from E line of Lot 29, C. O'Donnell Sur. No. 74	Location.
Shell Pet. Corp.'s No. 3 Gubert, 70 ft. from S line and 40 ft. from W line of Lot 28, C. O'Donnell Sur.	Location.
Texas Co.'s No. 3-B Belcher, 2,691 ft. N 42 deg. E from S cor. H. N. Little Sur., and 330 ft. NW at R/A from survey line	Coring sand and shale 4,998 ft.
Texas Co.'s No. 1 Boff, 265 ft. from S and 325 ft. from W line of C of Lot 24, H.T.&B. Sur. No. 74	Drlg. shale, lime and sand 3,884 ft.
Texas Co.'s No. 1 Cascio, 200 ft. E of Scopel lease and 330 ft. at right angles SW of Belcher "B" lease	Preparing to run 10¾-in. csg.; T.D. 1,116 ft.
Texas Co.'s No. 1 F. Lieder, 330 ft. from S line and 262 ft. from W line of Lot 9, H. M. Little Sur.	Derrick.

STRATTON RIDGE—BRAZORIA COUNTY

Amerada Pet. Corp.'s No. 5 Seaborn, Austin-Williams Sur., 600 ft. E of No. 3 and 229 ft. S at R/A	Drlg. sand 7,109 ft.

WEST COLUMBIA—BRAZORIA COUNTY

Miramar Oil Corp.'s No. 1 Hogg, Martin Varner league (second hole), 75 ft. N of first hole	T.S. 5,650 ft.; drlg. sand 5,652 ft.

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 3-B Gulf fee, 25 ft. out of SE cor. of lease	Derrick foundations.
Mills Bennett Prod. Co.'s No. 3-C Gulf fee, 442 ft. W along S line and 710 ft. N at right angles to S line	T.D. 4,876 ft.; cut and pulled 5-in. csg. to 4,849 ft.
Humble O. & R. Co.'s No. 5-B Kirby, Henry Griffith League, 925 ft. W of E line, 537 ft. N of S line of tract	Top salt 1,620 ft.; drlg. salt 4,283 ft.
McAlbert Oil Co.'s No. 3 Wilburn, Henry Griffith league	O.T.D. 5,317 ft.; T.S. 5,413 ft.; drlg. sand 5,415 ft.
Moody Corp.'s No. 5-A E. W. Barber, 100 ft. E of W line and 70 ft. N of S line of lease	Bldg. derrick.
Sinclair Prairie Oil Co.'s No. 15 Wilburn, Henry Griffith League, 150 ft. W of No. 14	Oil sand 4,830-70 ft.; swabbed fresh water; no oil; sidetracking at 4,600 ft. in hard shale.
Sinclair Prairie Oil Co.'s No. 17-A Wilburn, 150 ft. W of No. 13	Lost returns at 860 ft.; T.D. 1,237 ft.; 210 ft. of drill pipe in hole.
Sun Oil Co.'s No. 15 Wilburn, 405 ft. from E, 50 ft. from W line	Drlg. hard sandy shale 5,857 ft.
Sun Oil Co.'s No. 16 Wilburn fee, 130 ft. W of No. 15 and 40 ft. from N line of 20-acre tract in William Hodges Sur.	Drlg. salt 2,655 ft.
Sun Oil Co.'s No. 18 J. Wilburn, Henry Griffith League, 50 ft. N of S line, 50 ft. E of W line of lease	T.S. 4,465 ft.; set 9⅝-in. csg. 4,444 ft.; sand showing oil 4,485 ft.; drlg. shale 4,998 ft.
Sun Oil Co.'s No. 4 Higgins, Wm. Hodges Sur., 100 ft. W of No. 2	Drlg. oil sand 3,665 ft.

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Wildcat Drilling Wells Are High-Spot Feature in Development in the Shreveport Division

By J. R. CRUMPTON
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Apr. 16.—The North Louisiana district lagged far behind its usual activity during the past week, reporting only three completions and four new operations. The other three districts comprising this division, Arkansas, the East Texas border counties and Mississippi, all showed new signs of life, having two completions each and a number of active wildcats that are being closely watched.

MISSISSIPPI

Four wildcats in this district are holding the center of interest at present. In Greene County, the United Gas Public Service Co. has set 7-inch casing at 5,200 feet in its No. 1 Davis, in Section 30-1n-5w. This is the third string of casing to be set in the hole, 16-inch surface at 214 feet and 10-inch subsurface at 1,240 feet. The test is located on a large block of acreage. The Pelican Oil & Gasoline Co.'s No. 1 Pinelands, Inc., Section 22-3n-17w, Marion County, has set 10-inch surface casing at 300 feet and is drilling at 1,520 feet. This test is located in the southern part of the State where much geophysical work has been carried on during the past year. In Rankin County, south of the Jackson Field gas production, Benedum & Trees are making good progress on two deep holes. Their No. 1 Ascher, Section 35-3n-1e, is in chalk at 5,725 feet, and No. 1 Southern Development Co., Section 35-3n-1e, is drilling in black shale at 5,610 feet. The only other wildcat that has been active recently in the Mississippi district is the Orbit Drilling Co.'s No. 1 R. L. Parker, Section 14-14-1e, Warren County. This test set 7-inch casing at 3,130 feet and tested dry from a total depth of 3,169 feet. It is temporarily shut down, pending arrangements to deepen.

The Jackson Field reported two good gassers, one in the Hinds County area, and one on the east side of Pearl River in Rankin County. The former, Alexander & Weaver's No. 1 L. L. Mayes, Section 25-6n-1e, had an initial estimated flow of 50,000,000 feet of dry gas from 2,433 feet. Henslee & Tanner's No. 1 Sloan, Section 7-5n-2e, Rankin area, set 7-inch casing at 2,403 feet, top of the chalk, and completed the well as a 40,000,000-foot gasser from 2,409 feet.

NORTH LOUISIANA

Although this district experienced a lull as far as completions and new locations were concerned for the past seven days, this is no reflection on the wildcatting that has been started during the last several months. Two of the four new operations staked were rank wildcats. In DeSoto Parish, L. H. Alderson has made location for his No. 1 Peek, Section 25-11-13. The wildcat is located on an 1,800-acre block and will be a chalk rock test. In the same parish, C. T. Ruffin is blocking 2,000 acres centering around Section 11-11-14, near the old Spider Field. One of the other new wells was for the Converse Field in Sabine Parish, and the other was in the gas area of Union Parish.

None of the wildcats has reached the testing depth with the exception of two that have set casing to test shallow sands, and one deep test that has a fishing job. In Red River Parish, A. D. Mytilen's No. 1 Louisiana Delta Pecan Co., Section 27-13-11, is arranging to set 8-inch casing to test a sand wtih a good gas show at 785 feet. In the same parish, Oynett and others' No. 1 Thomas, Section 34-13-8, has set 10-inch surface casing at 77 feet and is drilling at 362 feet. This parish is assured of another wildcat at an early date, according to a recent transfer of leases. Kincaid & Kelly of San Antonio has taken over 4,800 acres from the Nimble Oil Co. with a contract to drill a 2,900-foot hole. The latter company recently made a tentative location in Section 4-14-10, but it is understood that the location will be staked in another part of the block by the new owners. The geology in the area surrounding the test, which indicates a subsurface high, was worked out by Durward Jolley, independent geologist, of Shreveport.

The Producers Oil & Gas Co.'s No. 1 W. H. Werner, Section 7-17-11, northeast of the Sligo gas field, Bossier Parish, test ' salt water with a slight show of gas in ..e Nacatoch from 900-70 feet. The top of the chalk was logged at 1,180 feet and the well tested dry from 1,703-30 feet. The crew is drilling in sandy lime at 1,740 feet. This test is attempting to prove up Trinity production around the 4,500-foot level, and will also test the Washita in the upper horizons of the lower Cretaceous as well as all upper Cretaceous formations which produce in the Sligo Field. In the southern part of Caddo Parish, A. D. King has set 8½-inch casing in his No. 1 Sallie Roach, Section 4-14-16, to test a show from the chalk rock at 1,539 feet. In the northwestern part of the same parish, Rodessa area, A. D. Norton's No. 1 J. B. French, Section 34-23-16, is fishing for liner at 4,700 feet with the bottom of the hole at 6,717 feet. DeSoto wildcats follow: Sunrise Oil Co.'s No. 1 Wemple, formerly Berry Oil Co., Section 14-12-11, drilling at 1,080 feet; Bailey Gaunce's No. 2 Jenkins, Section 35-13-12, stands temporarily abandoned at 1,400 feet. The well will probably not be finished because of defective titles. It is located near the same operator's No. 1 Jenkins which was recently completed as a 7,000,000-foot gasser from the 3,700-foot level, a lower paying horizon than heretofore uncovered in the old Naborton Field. Dempsey-Manziel's No. 1 Thigpen, Section 33-13-13, north of Mansfield, is coring at 616 feet.

The North Louisiana completions comprised one dry hole, one oil well and one gas well. The Arkansas-Louisiana Pipe Line Co.'s No. 6 Rea & Green, Section 10-18-4e, in the Ouachita Parish area of the Monroe Field, gauged 1,750,000 feet of gas from 2,195 feet. The well showed salt water at 2,408 feet and was plugged back to the completed depth. The Converse Field of Sabine Parish contributed the only small producer, L. D. Higgins and others' No. 1 A. J. Burkett, Section 16-9-13, pumping 35 bbls. from 2,034 feet. A. H. Tarver's No. 2 Baur & Barthold, Section 25-8-12, in the northeastern part of the Zwolle Field, was dry and abandoned at 2,639 feet.

ARKANSAS

The Miller County Field registered a failure with the abandonment of C. E. Murdock's No. 1 Andrew Rose in Section 4-16-26. The test, which is in the immediate area of the limited producing wells in that field, was first tested at 2,941 feet showing both oil and salt water. It was plugged back twice and finally abandoned at 2,920 feet with salt water still present. The Marine Oil Co.'s No. 2 M. H. Simmons, Section 10-18-13, in the Urbana Field, is flowing 100 bbls. of pipe line oil from 6 feet of sand at 3,524 feet to complete the Arkansas completions.

The first attempt to increase the flow of a well in Arkansas by acid treatment resulted disastrously. E. R. Henderson's No. 2 Ogden, Section 32-18-14, Union County, has been standing with 75 feet of oil in the hole for several months from a total depth of 2,208 feet. During the process of pumping acid into the hole under high pressure, an explosion occurred followed by fire which resulted fatally to one of the acid crew and destroyed the derrick. The results of this acid treatment in that area where a sand condition prevails had been eagerly awaited, as this process had only been used in this division in the Zwolle and Converse Fields to increase the production from chalk rock.

Daily Average Runs

The North Louisiana fields continued to decline during the past week, decreasing 455 bbls. in daily runs, but the Arkansas district showed an increase of 265 bbls. to make a net decline for the two districts of 190 bbls. daily. The daily average runs from the several pools were:

NORTH LOUISIANA

	Bbls.
Caddo, light	4,510
Caddo, heavy	1,625
Converse	1,315
Cotton Valley	565
DeSoto and Red River	1,540
Elm Grove	335
Haynesville	3,625
Holly	175
Homer	2,700
Pleasant Hill	205
Sarepta-Carterville	740
Urania	2,930
Zwolle	6,110
Total North Louisiana	26,375
Total last week	26,830
Decrease	455

ARKANSAS

Champagnolle	1,235
El Dorado	2,490
Lisbon	335
Miller County	860
Nevada	775
Smackover, light	2,450
Smackover, heavy	19,500
Stephens	600
Urbana	2,040
Total Arkansas	30,625
Total last week	30,370
Increase	265
Total both states	57,010
Total last week	57,200
Decrease	190

EAST TEXAS (BORDER COUNTIES)

Adams & Despot's No. 10 Adams, R. C. Jordon Survey, in the Bethany area, was completed as a small gasser with an estimated flow of 500,000 feet from 2,292 feet. On the flank of the small field northeast of Carthage, A. M. Keisker's No. 1 Frost Lumber Co., M. S. Potts

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Wildcat Operations in Louisiana-Arkansas

(Rotary operations unless otherwise designated)

North Louisiana

AVOYELLES PARISH

Company, well, farm name, section and block— Remarks:

Haas & Stokes' No. 1 Lindstrum Land Co., 690 ft. S, 990 ft. E, NW cor. Sec. 34-1n-6e ..... Set 12-in. 40 ft.

BOSSIER PARISH

Bossier O. & G. Co.'s No. 1 Sherrill, 300 ft. S and W, NE cor. Sec. 13-9-12 ..... Set 6-in. 775 ft.

C. B. Duffield's No. 2 Werner, Sec. 11-18-13 ..... Set 10-in. 95 ft.; coring 2,566 ft.

Ford & Hanover's No. 1 Cryer, 330 ft. S and W, NE cor. NW SW Sec. 25-19-12 ..... S.D. 900 ft.

McKinney & Stewart's No. 1 Nattin, 470 ft. W, 620 ft. S, NE cor. Sec. 22-22-14 ..... D.S. stuck 2,850 ft.

Producers O. & G. Co.'s No. 1 Werner, 660 ft. N and W, SE cor. Sec. 7-17-11 ..... Drlg. 1,730 ft.

CADDO PARISH

Ark.-La. P. L. Co.'s No. 1 Rodessa Land Co., 1,290 ft. N, 645 ft. W, SE cor. Sec. 23-23-16 ..... Set 13⅜-in. 211 ft.; drlg. 1,425 ft.

W. O. Bliss' No. 1 McDade, 330 ft. N and E, SW cor. NW NW Sec. 3-20-15 ..... Used acid; W.O.S.R. 1,640 ft.

Burkett O. & G. Co.'s No. 1 Lindholm, 400 ft. S and E, NW cor. NE SE Sec. 16-17-14 ..... S.D. 750 ft.

A. D. King, tr.'s No. 1 Roach, 641 ft. E, 375 ft. N, SW cor. SE Sec. 4-14-16 ..... Set 8¼-in. 1,502 ft.

CALDWELL PARISH

Terrell & Price's No. 1 La. Central Lbr. Co., 300 ft. N, 200 ft. W, SE cor. NW NE Sec. 18-11-3e ..... Arranging to sidetrack D.S.; T.D. 2,080 ft.

CATAHOULA PARISH

T. R. Hincey's No. 1 Millsaps, Sec. 32-9-6e ..... Rigging up.

DE SOTO PARISH

Bailey Gaunce's No. 2 Jenkins, 330 ft. N and W, SE cor. SW SW Sec. 35-13-12 ..... T.A. 1,400 ft.

Berry Oil Co.'s No. 1 Wemple, Sec. 14-12-11 ..... Drlg. 1,080 ft.

Dempsey & Manziel's No. 1 Thigpen, 375 ft. S, 330 ft. W, NE cor. SW NE Sec. 33-13-13 ..... Coring 616 ft.

W. B. Flynn's No. 1 Nabors, 330 ft. N, 400 ft. W, C Sec. 6-12-11 ..... Set 10-in. 20 ft.

LINCOLN PARISH

Triangle Drlg. Co.'s No. 1 Colvin, 660 ft. E of C Sec. 31-20-3w ..... Rigging up.

MOREHOUSE PARISH

Zeiger & Bacon's No. 1 Crossett, 400 ft. N, 300 ft. W, SE cor. Sec. 41-23-6e ..... Drlg. 2,230 ft.

RED RIVER PARISH

A. D. Mytiler's No. 1 La. Delta Pecan Co., 1,700 ft. N, 160 ft. E, SW cor. Sec. 27-13-11 ..... Arranging to set 8-in. 786 ft.

Oynett et al's No. 1 Thomas, 330 ft. S and E, C Sec. 34-13-8 ..... Set 10-in. 77 ft.; drlg. 362 ft.

SABINE PARISH

J. F. Anderson's No. 1 Burkett, 125 ft. N, 655 ft. E, SW cor. NW Sec. 10-9-13 ..... Sidetracking liner 1,921 ft.

J. W. Bettis et al's No. 1 Frost Lbr. Ind., 330 ft. S and W, NE cor. SW Sec. 15-9-13 ..... Rigging up.

(Continued on Page 94)

Lauck Test in Sedgwick County, Kansas, Pumps Mostly Water; Reno Wildcat Produces Oil

By JAMES McINTYRE

Up to this writing D. R. Lauck and Shoreline Oil Co.'s No. 1 Jordan, NW SW SE Section 6-28-1w, a few miles southwest of the city of Wichita, Sedgwick County, Kansas, is one of the disappointments of the year. This well, which started out as a good producer of high grade oil from a sand at 3,652-53 feet, was tested on the pump late last week and produced mostly water. The sand has usually been called Wilcox, but there was always a question about it, some geologists claiming it was Miser sand. At the opening of this week there was no report as to what the owners planned to do with the well, which, of course, would have to be drilled deeper to give the location a complete test. The discovery of oil was followed by one of the most widespread and intensive lease campaigns in the history of the State and fancy prices were paid for acreage and royalties. Many investors and farmers will be on the anxious seat until the completion of the test.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 Higler, C SE SE NW Section 16-26-4w, Reno County, a wildcat with Viola lime at 4,062-67 feet, flowed 364 bbls. through 2-inch tubing.

Production of Kansas in the past week was 131,585 bbls. per day as against 123,710 bbls. per day in the previous week. It is seldom that Kansas operators exceed the allowable, but they did last week by several thousand barrels daily.

Estimated daily production of important pools in Kansas for the week ending April 14 and for the preceding week was as follows:

Pool—	Apr. 14	Apr. 7
Hollow	11,735	12,240
Ritz-Canton	14,935	12,845
Voshell	7,115	6,975
Sedgwick County	7,920	6,800
Nikkell	6,230	4,875
Ellsworth County	4,041	3,351
Barton County	995	490
Rice County	12,614	10,364
Reno County	3,982	3,093
Ellis County	595	333
Kingman County	1,609	2,111
Stafford County	923	1,327
Russell County	6,840	7,350
Greenwood County	12,200	12,250
Butler County	17,000	17,000
Other pools	22,851	22,306
Total	131,585	123,710

Stafford County

Vickers Petroleum Co. and Phillips Petroleum Co.'s No. 1 Cravens, SW cor. NE Section 15-25-11w, Stafford County, a Viola lime producer at 3,920-21 feet, flowed 151 bbls. of oil and 20 bbls. of water in 24 hours. It was drilled 1 foot deeper and flowed 8 bbls. per hour by heads.

Greenwood and Woodson

Doley and others abandoned No. 1 Hendrickson, NE cor. NW Section 9-25-9, Greenwood County, which was a hole full of water from sand at 2,165-70 feet.

Landon and others' No. 7 Smith, NE SW NW Section 8-24-12, was completed. It started at 75 bbls. per day on the pump from sand at 1,718-49 feet.

Matthews and Rex' No. 5 Wilson, 220 feet north and 920 feet west of C Section 8-24-12, made 80 bbls. initially on the pump from sand at 1,714-35 feet and was completed.

Anderson and Pence's No. 2 Aldans, 990 feet south and 1,050 feet west of C Section 17-24-13, is a 25-bbl. pumper, completed in Mississippi lime at 1,589-1,607 feet.

Ward McGinnis was drilling at 750 feet in No. 12 Wiggins-B, CNL SE SW NE Section 30-24-11. R. H. Findeiss and others had rig up for No. 2 Eureka Bank, C S half NW NE Section 16-24-12.

Reno and Harvey Counties

Olsen Drilling Co. and Shell Petroleum Corp.'s No. 4 Roberts, C SW SW Section 25-23-4w, Reno County, made a potential test flow of 1,618 bbls. in 24 hours from chat at 3,252-67 feet. It was completed.

Olsen Drilling Co., Shell Petroleum Corp. and Continental Oil Co.'s No. 2-B Vogt, C SW NE Section 26-23-4w, was completed. It is a 9,500,000-foot gas well in chat at 3,250-3,310 feet.

Barnsdall Oil Co. had rig up for No. 1 Sabin, NE cor. Section 11-23-4w. Olsen Drilling Co. had rig up for No. 3 Roberts, C NW SW Section 25-23-4w. Rig is up for McPherson Drilling Co.'s No. 2 Stanley, C SE SE Section 35-23-4w.

In the Hollow Pool, Harvey County, Shell Petroleum Corp. completed No. 4 Voth, SE NE NW Section 4-22-3w. It pumped 1,440 bbls. in 24 hours from Hunton lime at 3,498-3,518 feet.

Frost and others' No. 8 Martens, SE SW NE SE Section 19-22-3w, took a potential test and flowed 225 bbls. of oil and 2,500,000 feet of gas from Hunton lime at 3,453-63 feet.

McPherson County

Argo Oil and Shell Petroleum Corp.'s No. 1 Neufeldt, NE SW SE Section 16-21-3w, pumped 125 bbls. in 10 hours from Simpson sand and shot with 10 quarts at 3,433-41 feet.

Mid-Kansas Oil & Gas Co.'s No. 4 Schmidt, SE NE NW Section 33-21-3w, was completed in Hunton lime at 3,455-68 feet. It pumped 245 bbls. in 24 hours.

Roth & Faurot's No. 1 Carlson, NE NW NE Section 24-19-3w, was completed in chat at 2,975-3,001 feet. It pumped 196 bbls. in 24 hours.

Stanolind Oil & Gas Co.'s No. 6 Lovett, SW SE SW Section 13-19-2w, was acidized at 3,396-3,410 feet and pumped 328 bbls. in 24 hours. It was completed.

McBride, Inc.'s No. 4 Griffin, C E half SW Section 14-19-2w, had Viola lime at 3,356-65 feet. It pumped 287 bbls. in 19 hours and then was acidized and pumped 835 bbls. in 24 hours. It was re-treated.

J. Jess Cling was rigged up to start No. 1-A Paulson, NW NE NW Section 6-19-2w. McBride, Inc., was moving in rotary for No. 6 Griffin, C E half NE SW Section 14-19-2w; Shell Petroleum Corp. had rotary moved in for No. 8 Meyers-B, C W half NW SE Section 14-19-2w. Helmerich & Payne have rig up for No. 1-A Lovett, SW NW Section 24-19-2w. Darby Petroleum Co. has material in for No. 5 Coons, NW NE SW Section 20-19-1w.

Russell County

Foster & Braden's No. 1 Sellens, NE cor. Section 27-15-13, swabbed 145 bbls. in 24 hours and later pumped 61 bbls. of oil and 24 bbls. of water, total depth 3,-298 feet.

Rice County

Aylward, Trees and others were moving in on No. 1 Belden, SW SE NE Section 27-20-7w, Rice County.

Skelly Oil Co. abandoned No. 1 Gill, 660 feet south and 440 feet west of NE cor. Section 15-19-10w. It was drilled to 3,298 feet and acidized but with no results. It was also acidized at 2,958-3,022 feet, but there was no oil.

Ramsey and others have rig up for No. 2 School lot, NE SW NW Section 32-19-9w.

Southern Tier Counties

Continental Oil Co.'s No. 3 Curry, C W half NW SW Section 26-34-2, Sumner County, is spudded.

Wentz and Continental Oil Co.'s wildcat, No. 1 Kerns, SE cor. NE Section 6-34-2w, Sumner County, was drilling at 4,529 feet. It found the base of the Mississippi lime at 4,452 feet, Viola lime at 4,511 feet, a small show of oil, and had 3,700 feet of water in the hole at 3,700 feet.

Wakefield and Lario Oil & Gas Co. had rig on the ground for No. 1-A McCullough, SW NW SE Section 14-33-4, Cowley County.

Morgan & Flynn have location made for No. 1 Mercer, NW NE NW Section 36-32-1w, Sumner County.

Wood Brothers have rig on the ground for No. 1 Anthony, C SW SW Section 17-31-9w, Harper County.

Minnehoma Oil Co.'s No. 4 Ferguson, NE NW SW Section 3-31-8, Elk County, is a 25-bbl. completion in Kansas City lime at 1,938-59 feet.

Kessler and others have made a location for No. 1 Bolling, SW NW SW Section 12-28-5w, Harper County.

Sedgwick County

Sovereign Oil Co. was drilling at 2,220 feet in No. 1-A Niessen, SW NE SW Section 7-26-1e, Sedgwick County. P. H. White and others have rig up for No. 1-B Gorman, CSL NW NW SW Section 6-26-1e. Marlyn Oil Co. was rigged up to start No. 1-A Rothfus, NW NE NE Section 7-26-1e.

Butler County

Empire Oil & Refining Co.'s No. 30 Cardey, NW SE Section 11-26-4, in the heart of the famous old Towanda Field, Butler County, was drilled to Lansing lime at 1,946-86 feet and acidized. It was completed as a 25-bbl. well. It pumped as much water as it did oil.

L. C. Hay and others spudded and shut down No. 1-A Boley, SE SW SE Section 36-26-6.

Wildcat Operations in Kansas

Week Ending April 14

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Skelton et al's No. 1 Ott, C SE SE Sec. 16-19-14w	P.B. to 3,255 ft.; acidized; pumping wtr.
Walter Shearen et al's No. 1 Kempler, SE NE NE Sec. 31-18-11w	Material.
BUTLER COUNTY	
DeGenther et al's No. 1 Marnane, NW cor. Sec. 29-26-2	Cellar.
Tom Palmer and Darby Pet. Co.'s No. 1 Harder, NW NE Sec. 27-24s3	Drlg. 2,056 ft.
Van Meter et al's No. 1 Moore, NE cor. Sec. 5-26-4	Rig.
DICKINSON COUNTY	
Dutch Oil Co.'s No. 1 Phillips, C NE NW Sec. 15-15-1e	Drlg. 250 ft.
ELLIS COUNTY	
Alma Pet. Co. et al's No. 1 Rhodes estate, SW SW Sec. 14-11-23w	Drlg. 124 ft.
ELK COUNTY	
Lerke et al's No. 1 Mason, C NE NE Sec. 5-31-10	U.R. csg. 900 ft.
ELLSWORTH COUNTY	
Smith & Ash et al's No. 1 Wilkins, SE cor. Sec. 13-17-10w	Drlg. 3,060 ft.
FINNEY COUNTY	
National Ref. Co. et al's No. 1 Smith, C SE SW Sec. 2-23-29w	Set 10-in. csg. 1,500 ft.
GREENWOOD COUNTY	
Ackman et al's No. 1-A Gilroy, SE SW NW Sec. 24-25-13	Drlg. 150 ft.
Oko O. & G. Co.'s No. 1 Austin, C SE Sec. 11-22-10	Drlg. 1,900 ft.
McPHERSON COUNTY	
Tom Palmer's No. 1 Nordling, SE SW Sec. 19-18-2w	Drlg. 1,030 ft.
Slick, Pryor & Lockhart's No. 1 Ordineal, SE SW SE Sec. 21-20-3w	Drlg. 2,440 ft.
Continental Oil Co. et al's No. 1 Graber, NE NW Sec. 32-21-1w	Drlg. 980 ft.
Jim Madison's No. 1 Boeaker, SE NW Sec. 29-20-1w	Spudded.
Harris & Haun's No. 1 Rupp, SW cor. Sec. 12-21-2w	D.&A. 3,527 ft.
PHILLIPS COUNTY	
Ashby et al's No. 1 Close, C SE Sec. 24-5-18w	Drlg. 2,735 ft.
RENO COUNTY	
Stanolind and Amerada's No. 1 Hilger, SE NW Sec. 16-26-4w	Viola 4,062-67 ft.; swabbed 300 bbls. fluid in 12 hrs.
RICE COUNTY	
Aylward & Trees' No. 1 Belder, SW SE NE Sec. 27-20-7w	Moving in.
Deitrick et al's No. 1 Fitzpatrick, C NE NE Sec. 30-21-8w	Drlg. 655 ft.
Foraker & Hutchins' No. 1 Smyser, SE NW Sec. 28-20-8w	Cellar.
Geo. Dickey et al's No. 1 Hunter, NE cor. Sec. 35-19-7w	Drlg. 2,775 ft.
Langston et al's No. 1 Markle, NE SW Sec. 1-20-9w	Drlg. 1,170 ft.
Reserve Dev. Co.'s No. 1 Heinz, NE SW SE Sec. 8-18-10w	Drlg. 320 ft.
ROOKS COUNTY	
Ashby et al's No. 1 Doughty, C SW SW Sec. 15-8-19w	Spudded and S.D.
Phillips Pet. Co.'s No. 1 Dopitz, C SW SW Sec. 21-8-17w	Drlg. 2,400 ft.
RUSSELL COUNTY	
Western Exploration Co.'s No. 1 Andrea, SW cor. Sec. 30-15-12w	Drlg. 2,603 ft.
SEDGWICK COUNTY	
D. Lauck and Shoreline Oil Co.'s No. 1 Jordan, NW SW SE Sec. 6-28-1w	Wilcox 3,652-53 ft.; 1,185 bbls. in 16 hrs.; later pumped 12 bbls. fluid per hr.
STAFFORD COUNTY	
Vickers Pet. Co. and Phillips Pet. Co.'s No. 1 Cravens, SW NE Sec. 15-25-11w	Viola 3,920-22 ft.; flowed 8 bbls. per hr. by heads.
SUMNER COUNTY	
Wentz and Continental Oil Co.'s No. 1 Kerns, SE cor. NE Sec. 6-34-2w	Drlg. 4,529 ft.
TREGO COUNTY	
Central Commercial's No. 2 King, C SE SW NE	Drlg. out cave; T.D. 4,015 ft.
WOODSON COUNTY	
Lewis Bros.' No. 1 Riggs, SW cor. Sec. 10-26-14	Set pipe at 765 ft.; S.D.

Crescent Pool Increases in Importance With the Finding of Prolific Deeper Pay Formation

By JAMES McINTYRE

None of the several recent Oklahoma wildcat discoveries that are not yet completed showed much signs of improvement in the past week. The most important of the wells, that of the Denver Producing & Refining Co. in the Binger district, Caddo County, was bailed from time to time all week but it would not flow. The gas churned the mud and fluid in the hole so that the top of the fluid level varied as much as 2,000 feet in the course of the week. The bailer was run far down the hole and brought up considerable mud along with oil and water. At the close of the past calendar week it was decided to give the well a small shot early this week.

The most significant event of the week was in the Crescent Pool in Logan County. The producing wells in the pool have been flowing from the first Wilcox sand, which was highly productive. The only wells that had penetrated the second Wilcox were those low on structure which had little or no production in either first or second Wilcox. In the past week the Mid-Continent Petroleum Corp. which brought in a well in December in the first Wilcox, No. 1 Campbell, C SE NE Section 33-17-4w, drilled deeper and got a good well in the second pay. The first Wilcox was found at 6,045-80 feet. It was about a 250-bbl. well. Second Wilcox was found at 6,178 feet and was drilled in 6 feet. The well flowed 1,307 bbls. in 13 hours, flowing steadily.

Oklahoma Production

Estimated daily average production in the week ending April 14 and the preceding week was as follows:

Pool—	Apr. 14	Apr. 7
Allen	8,935	9,115
Bristow-Slick	10,250	10,250
Cushing-Shamrock	13,500	13,500
Chandler district	6,500	6,000
Healdton	9,250	9,250
Hewitt	5,150	5,150
Burbank	12,060	11,000
Balance of Osage	24,000	23,000
Lucien	10,440	6,710
Logan County	3,175	2,475
Bowlegs	10,720	8,035
Carr City	6,725	4,265
Earlsboro	10,745	6,710
East Earlsboro	13,725	9,026
South Earlsboro	1,565	1,165
Little River	16,155	9,810
East Little River	895	580
Seminole	11,555	8,815
East Seminole	1,275	1,010
Searight	2,725	2,355
Maud	1,320	1,240
Mission	4,315	3,850
St. Louis-Pearson	22,980	17,505
Cromwell	4,700	4,700
Oklahoma City	189,545	166,020
Tatums	7,810	6,940
Sholem-Alechem	4,400	4,400
Duncan	4,450	4,425
Tonkawa-Garber-Thomas	6,750	6,750
Fish	2,745	2,850
Konawa	2,450	2,195
Gray	2,705	2,785
Graham	3,650	3,650
Holdenville	3,770	3,860
Wewoka	5,000	5,000
Yale-Jennings	5,000	5,000
Other fields	71,760	71,082
Total	522,585	460,505

Production in the past week increased to 522,585 bbls. from 460,505 bbls. per day, the record of the week before. The production in the past week was over 46,000 bbls. per day more than the Government's allotment for Oklahoma

Operators in the Oklahoma City Field were in for another series of investigations during the week-end, with charges being made of irregularities in producing, taking potentials and filing of reports. The investigators admitted that the "field is bottled up" and illegally produced oil cannot get out to refineries.

Most important of these investigations is that of Federal agents who have been chasing rumors for the last three months. Several refineries are known to have been found to be out of line, but after warnings they have changed operation methods. These agents are concerned primarily with violations of the oil code provisions and shipment of illegal crude and refined products in interstate shipments.

The state umpire's department is making a complete check of potentials taken during the last two months; it also is inspecting connections on new wells and studying the production methods. Because of irregular connections, potentials have been canceled on more than a dozen wells.

Crews have been digging around and checking connections on wells in which the municipality of Oklahoma City has an interest. They have found indications of irregular connections at several wells, but in each instance the connections have been removed.

Osage County

Carter Oil Co. and Empire Oil & Refining Co.'s No. 1 Higdon, SW cor. NE Section 3-25-6, South Burbank Field, Osage County, got Burbank sand at 2,746-2,814 feet. It flowed 345 bbls. naturally, and was then shot with 80 quarts at 2,756-2,812 feet and flowed 680 bbls. in 24 hours. Liner was reset and the crew was cleaning out.

Skelly Oil Co.'s No. 1 Ducotey, NE cor. SW Section 3-25-6, was completed. It produced 3,983 bbls. in 24 hours from sand at 2,700-79 feet.

Champlin Refining Co.'s No. 1 Maker, NW cor. NE Section 15-25-6, flowed 70 bbls. in one hour and 30 minutes from sand at 2,808-77 feet.

Kasishke and others' No. 3 Carroll, SW cor. Section 15-25-6, had sand at 2,723 feet, and found oil from 2,744 to 2,761 feet. A 20-quart shot yielded 61 bbls. in 12 hours but collapsed the 6-inch casing. It will be shot again after cleaning out.

Skelly Oil Co.'s No. 1 C. DeNoya, SE cor. Section 16-25-6, was shot with 50 quarts in sand at 2,741-62 feet and yielded 154 bbls. in 24 hours and 132 bbls. on the second day.

In the Naval Reserve Field, Sinclair Prairie Oil Co.'s No. 1, SW cor. NW Section 11-24-7, was abandoned at 2,921 feet.

Champlin Refining Co.'s No. 10, CSL NW SW SE Section 16-24-7, was a 300-bbl. initial producer after a shot in the Bartlesville sand at 2,604-52 feet. It was completed.

Same company completed No. 1, SE cor. NW Section 16-24-7, which started at 214 bbls. after a shot at 2,624-2,710 feet.

Lewis Production Co. and Continental Oil Co. completed No. 4, 806 feet from the south line and 300 feet from the east line, SW Section 16-24-7. It is a 300-bbl. well in Bartlesville sand at 2,617-78 feet.

Same operators' No. 5, SE cor. SW Section 16-24-7, made 210 bbls. the first 24 hours from sand at 2,661-2,712 feet. It was completed.

Lewis Production Co.'s No. 2, NE cor. NW Section 21-24-7, was shot with 70 quarts in sand at 2,663-99 feet and the well flowed 515 bbls. in 18 hours.

Skelly Oil Co. completed No. 2, SE NE NW Section 28-24-7. It had an initial production of 112 bbls. of oil with some water at 2,612-76 feet, which had been shot.

E. B. Lawson's No. 1-A (twin), 200 feet from south line and 400 feet from the west line, NE Section 30-27-12, was completed in sand at 297-365 feet, a small gas well.

City of Pawhuska's No. 24, 300 feet from south line and 1,178 feet from the east line, NE Section 36-26-8, was dry and abandoned at 1,226 feet.

Johnson Oil Refining Co.'s No. 1, NW SW SE Section 11-21-8, was dry and abandoned at 2,485 feet.

Moore estate's No. 48, SW SE NW Section 12-21-8, was a hole full of water in Arbuckle lime at 2,902-95 feet and was abandoned.

Ohio Osage Oil Co. completed a 25-bbl. well in No. 4, NE NW NW Section 34-21-9, in Layton sand at 1,115-25 feet.

First reports on new work started in Osage County last week include Manahan, Oil and Gypsy Oil Co.'s No. 3, SW SE NW Section 3-25-6, a location; Champlin Refining Co.'s No. 5, SE SW NE Section 15-25-6, building rig; same company's No. 2, NE NW SE Section 15-25-6, rig up; A. H. Kasishke's No. 5, NW cor. SW Section 15-25-6, building rig; Phillips Petroleum Co.'s No. 6, SW cor. NW Section 15-25-6, building rig; Skelly Oil Co.'s No. 2, NE cor. Section 16-25-6, rig; H. F. Worley's No. 1, CEL NE SW Section 16-25-6, rig on the ground; Champlin Refining Co.'s No. 13 Kennedy, SW SE SE Section 16-24-7, and No. 14, SE SW SE Section 16, building rigs; Lewis Production Co.'s No. 5, SW NW NE Section 21-24-7, rigging up, and No. 6, NW SW NE Section 21-24-7, rigging up; Bay Oil Co.'s No. 1, SE cor. NW Section 14-23-7, location; Norbla Oil Co.'s No. 2-A, NE SW NW Section 28-23-9, location; Murray Ringgold's No. 4 Turkey Island, C NE SW NE Section 25-21-8, location; W. C. Norris' No. 1, NW cor. SE Section 29-21-11, rigging up.

Noble County

The Texas Co. and others have made location for a test, No. 1 Voss, C NE SE Section 28-22-2w, Noble County.

Wildcat Operations in Oklahoma

Week Ending April 14

Northern Oklahoma

ATOKA COUNTY

Company, farm and location— Remarks:

Malernee et al's No. 1 Greenville, N. B., NW SW Sec. 35-2s-13e ..... S.D. 550 ft.

ALFALFA COUNTY

Acre et al's No. 1 Acre, C SW NE Sec. 14-24-11w ..... T.D. 6,460 ft.; making a small flow of oil once a week.

BECKHAM COUNTY

West Oak Gas Co. et al's No. 1 Powell, NW SW Sec. 11-9-25w ..... T.D. 3,345 ft.; run 8-in. csg.; est. 4,000,000 ft. of gas; R.U.S.T.

CADDO COUNTY

Denver Prod. & Ref. Co.'s No. 1 Noe, NW SW SW Sec. 34-10-10w ..... Set csg. 9,922 ft.; made small flow; bailing at 9,910 ft.

COAL COUNTY

Moore & Deaner's No. 1 Edward, NW NE SE Sec. 27-2-8 ..... Drlg. 3,470 ft.

Westheimer & Daube's No. 1 Lowman, C NE SE Sec. 18-2-8 ..... Drlg. 4,020 ft.

CREEK COUNTY

McBride et al's No. 1-A Wickham, NE NW SE Sec. 3-15-7 ..... Dolomite 4,066 ft.; running csg.

GARFIELD COUNTY

Indian Terr. Illum. Oil Co.'s No. 1 Clark, C NW NW Sec. 34-21-6w ..... Fishing 6,520 ft.

Argo O. & G. Co.'s No. 1 Dickman, SW cor. SE Sec. 13-24-1w ..... Drlg. 2,710 ft.

Ross Cummings et al's No. 1 Gage, SE NW Sec. 27-23-3w ..... Spudded.

GARVIN COUNTY

Anderson & Kerr's No. 1 Rodke, NW NE NW Sec. 21-4-1w ..... Drlg. 4,968 ft.

Carter Oil Co. et al's No. 1 Hanner, SW NE NW Sec. 24-5-1w ..... Drlg. 3,355 ft.

Denver P. & R.'s No. 1 Newburn, C SE SW Sec. 22-5-1e.. Location.

Phillips Pet. Co.'s No. 1 Dennis, SE NE Sec. 9-4-1e..... T.D. 4,189 ft.; H.F.W.

HUGHES COUNTY

Dickison et al's No. 1 Webster, NW NE Sec. 22-10-10.. Rig on ground.

J. B. Hill's No. 1-A Perkins, C W½ SW SW Sec. 7-5-9.. S.D. 1,030 ft.

Birk-Kan's No. 1 Gardner, NE NW Sec. 32-6-9 ..... Drlg. 1,670 ft.

Olympic Oil Co.'s No. 1 McClassen, SE NW NW Sec. 12-9-8 ..... T.D. 600 ft.; lost tools; S.D.

Scruggs et al's No. 1 Black, NE Sec. 13-9-10 ..... T.D. 3,135 ft.; pipe parted.

KAY COUNTY

E. D. Buck's No. 1 Bush, C NE NE Sec. 25-28-4 ..... Comp. 500,000 ft. gas.

Argo O. & G. Co.'s No. 1 Freese, SW NE NW Sec. 30-25-1w ..... Location.

LINCOLN COUNTY

Anderson & Kerr's No. 1 Huckabee, SW cor. Sec. 9-15-2.. Sand 4,670-86 ft.; will test.

Harvey Newman Oil Co.'s No. 1 Rueb, C NW NE Sec. 23-15-5 ..... Cellar

H. W. Pierce's No. 1 McMurtry, NE cor. Sec. 6-14-5 .... Drlg. 2,670 ft.

LOGAN COUNTY

Anderson & Kerr's No. 1-A Hull, 455 ft. S, 330 ft. W of E cor. Sec. 11-18-4w ..... Sand 4,775-4,812 ft.; flowed 287 bbls. in 24 hrs.; agitating with tools.

W. N. Anthony's No. 1 Fruin, SE SW Sec. 4-16-1 ..... Rig.

Amerada and Stanolind's No. 1 Fouts, NW NE Sec. 14-17-1w ..... Wilcox sand 5,098-5,102 ft.; shot with 60 qts.; 60 bbls.; C.O.

Barnsdall Oil Co. et al's No. 1 Seyller, NE SE Sec. 12-15-4w ..... Wilcox sand 6,590-6,621 ft.; wtr.; abd.

Jadeka Dev. Co.'s No. 1 Frakes, C SW NE SW Sec. 16-15-6w ..... S.D. 2,531 ft.

McINTOSH COUNTY

McGirl & Sherry's No. 1 Unallotted, SW cor. Sec. 17-10-14 ..... Drlg. 1,050 ft.

NOBLE COUNTY

Continental Oil Co. et al's No. 1 Bennett, SE NW Sec. 19-20-1w ..... Rig.

Texas Co. et al's No. 1 Voss, C NE SE Sec. 28-22-2w.... Location.

OKLAHOMA COUNTY

Gypsy Oil Co. et al's No. 1 Harris, C SW NE Sec. 27-13-4w ..... Rig.

Springrose Drlg. Co.'s No. 1 Edwards, C SE Sec.

(Continued on Page 88)

Lucien Consolidated's No. 3 Magney, C NE SW Section 17-20-2w, Lucien Pool, was completed in the second Wilcox sand at 5,206-40 feet. It flowed 412 bbls. in a 12-hour potential test. It showed 1,500,000 feet of gas.

Same operators' No. 1 Boley B, C SE NE Section 18-20-2w, was a big well in the second Wilcox at 5,148-5,235 feet. It flowed 5,480 bbls. of oil and 5,000,000 feet of gas in 24 hours and was completed.

Carter Oil Co.'s No. 2 Weber, C SE SW Section 20-20-2w, flowed 1,986 bbls. in a 12-hour potential test from sand at 5,118-5,200 feet.

Magnolia Petroleum Co.'s No. 1 Long, C SW SE Section 20-20-2w, had a fishing job, but the well flowed 909 bbls. in 24 hours, while the crew was trying to recover the tools; sand record, 5,128-5,200 feet.

Minnehoma Oil Co.'s No. 2 Shonwald, C SE NE Section 20-20-2w, was shot with 120 quarts at 5,172-81 feet. The crew was cleaning out. The well was estimated to be good for 500 bbls.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp.'s No. 2 Shonwald, C NE SE Section 20-20-2w, was shot twice with 40 quarts of explosive at 5,153-71 feet and made 518 bbls. of oil and 1,000,000 feet of gas in 24 hours. It was completed.

Oklahoma County

Abilene Oil Co.'s No. 1 Community, 910 feet from south line and 110 feet from the east line, SW Section 34-12-3w, Oklahoma City Field, flowed 2,075 bbls. in four hours, with gas at the rate of 7,000,000 feet per day. It was completed.

Westgate Oil Co.'s No. 4 Carey, 1,005 feet south and 341 feet east of C Section 34-12-3w, was put on the gas lift and made 1,369 bbls. in six hours and was then shut in. Wilcox sand lay at 6,368-6,523 feet.

Wofford Drilling Co. and Skelly Oil Co.'s No. 2 Military Addition, 1,230 feet south and 190 feet west of C Section 34-12-3w, flowed 648 bbls. in eight hours. The crew was fishing for tools. Wilcox sand lay at 6,385-6,445 feet.

Gulf Production Co.'s No. 1 Rucker, 906 feet south and 20 feet east of C Section 15-11-3w, was shot with 60 quarts at 6,440-6,530 feet. It flowed 50 bbls. in one hour and was shut in.

The Springrose Drilling Co. and others' test, No. 1 Edwards, C SE SE Section 19-11-1e, was treated in Hunton lime with 400 pounds of what is described in the field report as a new type of chemical, and in three days the well was opened and made a flow of 81 bbls. in 24 hours.

Westgate Oil Co. had rig on the ground for No. 6 Carey, 900 feet south and 660 feet east of C Section 34-12-3w.

Lincoln County

In the West Chandler Pool in Lincoln County, Sinclair Prairie Oil Co. completed No. 1 Hopkins, SW NW NE Section 12-14-3, after it tested 635 bbls. in 24 hours from Wilcox sand at 4,982-97 feet.

Stanolind Oil & Gas Co. and Amerada Petroleum Co. completed No. 1 Cragg, NW cor. Section 12-14-3, which produced 2,430 bbls. in 24 hours from Wilcox sand at 5,012-15 feet.

In the older Chandler Pool, Magnolia Petroleum Co.'s No. 4 Telford, SE SW SE Section 7-14-4, was completed. It is a 250-bbl. pumper from Wilcox sand at 4,947-56 feet.

Sinclair Prairie Oil Co. completed No. 2 Mayer, NW NE NW Section 17-14-4. It was plugged back to 4,982 feet (top of the sand 4,975 feet), and swabbed 340 bbls. of oil and 35 bbls. of water.

Magnolia Petroleum Co.'s No. 3 Wagner, NW NE NE Section 17-14-4, had sand at 5,009-15 feet. It flowed 220 bbls. in 18 hours and then quit. Later it swabbed 100 bbls. in 24 hours.

Logan County

In the Crescent Pool, Logan County, Eason Oil Co.'s No. 1 Katscher, C NW SW Section 34-17-4w, had Wilcox sand at 6,221-73 feet. The well flowed 1,200 bbls. in nine hours and then sanded up.

Eason Oil Co. made a location for No. 2 Katscher, C SW SW Section 34-17-4w.

Amerada Petroleum Corp. and Stanolind Oil & Gas Co.'s No. 1 Fouts, NW cor. NE Section 14-17-1w, Langston area, was shot with 60 quarts at 5,097-5,107 feet; 15 quarts at 5,107-50 feet; 60 quarts at 5,150-91 feet, all at once. The shot was tamped with 100 feet of sand and 60 bbls. of oil. It responded with 1,303 bbls. in 12 hours flowing by heads.

Tulsa and Wagoner Counties

In the Broken Arrow district, Tulsa County, Barton and others' No. 1 Boles, NE SE SW Section 13-18-14, shot sand at 1,318-30 feet and have a 10-bbl. well.

Pearson and others were drilling at 1,361 feet in No. 2 Brown, C SW SE Section 14-18-14, after penetrating dry sand at 1,318-35 feet.

C. A. Mechling's No. 7 Nave, C NE SE Section 25-18-14, was abandoned at 1,305 feet. It had 250,000 feet of gas in Burgess sand at 1,288-1,302 feet.

B. G. Goble's No. 4 Lovett, SE NW NE SW Section 35-18-15, Wagoner County, was a small gas well at 1,022-27 feet, and No. 5, SE NW SW Section 35, is a 30-bbl. completion at 1,019-33 feet, which had been shot.

In the Bixby district, Tulsa County, Barth & Owens' No. 1 Perryman, SW NE SE Section 5-17-14, was dry and abandoned at 1,550 feet; F. D. Misener's No. 4 Hodge, CSL NE NW Section 8-17-14, was a 3,000,000-foot gasser at 1,475-88 feet, completed. Kiskaddon and others' No. 1 Barry, SE NW SE Section 17-17-14, was dry and abandoned at 1,607 feet.

In the Leonard district, Tulsa County, Crews & Armstrong's No. 3 Squire, C NW SE Section 8-16-14, had Glen sand at 1,517 feet and oil at 1,523-25 feet, total depth, and it flowed 250 bbls. in 24 hours. It is not a completion.

Okmulgee and Muskogee Counties

R. E. Godfrey's No. 1 MacNac, SE SW SW Section 13-15-17, Muskogee County, was dry and abandoned in Wilcox sand at 1,613-58 feet. T. E. Wheeler spudded in and then abandoned. No. 1-A Jackson, SE cor. Section 13-15-17.

J. R. Allen's No. 8 Smith, SW NE SE Section 34-14-1, Okmulgee County, is a 10-bbl. completion at 1,934-46 feet.

Pringle & Hyer have a rig up for No. 1 Watson, NE SW NE Section 25-14-11. Beggs Oil & Gas Co. has machine in for No. 16 Hawkins, NW NE NW Section 10-15-11. Harmon Brothers were drilling at 300 feet in No. 3 Harjo, SE NE SE Section 5-15-12. Jack Summers' No. 3 McKinney, NE NW NW Section 16-15-14, was spudding. E. Price's No. 1-A Franklin, NW NE NE Section 1-14-15.

Payne, Pawnee and Creek Counties

P. Adamson was drilling at 350 feet in No. 2 Herton, C SE NE Section 4-20-8, Pawnee County, and Stanley Martin was deepening No. 1-A Cotton, SE cor. SW Section 6-20-8, from 2,517 feet, and drilling at 2,550 feet.

Mulberry Oil Co. was rigged up to deepen No. 3 Fisher, NW SE NE Section 27-19-4, Yale district, Payne County. Old total depth is 3,470 feet.

Kerr & Bisett's No. 1-A Sanger, NE NW SE SE Section 9-19-10, Creek County, is a 7-bbl. completion in sand at 620-32 feet. Same operators were rigging up No. 2-A, NW SE SE Section 9.

E. L. Robinson's No. 3 Price, NW SW NE Section 3-18-8, is a 10-bbl. pumper from sand at 2,572-2,602 feet.

J. A. Hull's No. 1 Catch, NW NE SW Section 22-18-8, Olive district, is estimated at 25 bbls. a day following a shot at 2,657-80 feet.

Doke & Hughes completed No. 5 Rentie, SE SW SE Section 34-18-8. It was shot in sand at 1,308-38 feet and started at 65 bbls. per day.

In the north end of the Glenn Pool district Higgins and Helscel's No. 1 Riverbed, SW NW NE Section 1-18-12, got Red Fork sand at 1,461-78 feet and the well flowed 124 bbls. a day naturally. The crew was getting ready to run 5-inch casing.

(Continued on Page 86)

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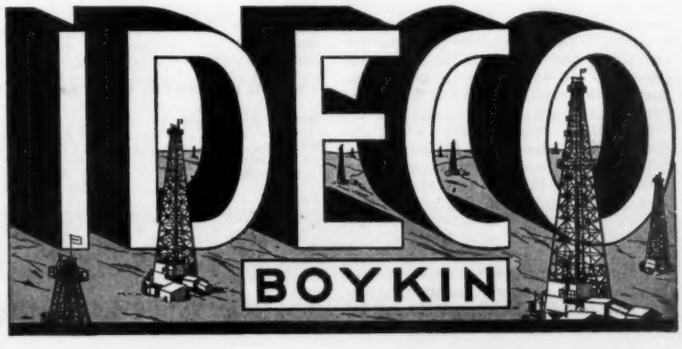

California Marketers Seek Revised Agreement; Organization of Operating Agency Suggested

By L. P. STOCKMAN
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 16.—California marketers are making a strenuous attempt to work out some kind of an agreement which will restore normal gasoline prices and enhance the possibility of effecting some semblance of stability. This is necessary in order to prevent a complete breakdown as crude oil prices are completely out of line with refined oil quotations. Representatives of practically every marketing company have been working almost day and night for more than a week, and tentative plans, covering the projected program, have just been completed. No official information has been released, but it seems to be the opinion of those in close touch with the situation that the California marketing cartel will be thrown into the discard and the new agreement adopted.

Preliminary plans of the new agreement contemplate the organization of an operating agency through which producers will be assured an outlet for all crude oil produced under curtailment and which will likewise absorb surplus gasoline from time to time. In order that the provisions of the agreement may not discriminate against small refiners, sponsors contemplate, with the approval of the President, purchase of gasoline from nonintegrated companies and the sale of such gasoline through orderly channels. This will protect all legitimate producers and refiners and at the same time prevent indiscriminate dumping of gasoline to the detriment of all concerned.

The status of secondary outlets is more or less conjectural although it is quite generally known that several marketers on the Pacific Coast regard this type of marketing as both unethical and undesirable. The Department of Justice has sanctioned secondary outlets provided there is no difference in price but it is quite obvious that this prohibition prevents operation under the present setup. Union Oil Co. and The Texas Co. which do not have secondary outlets are reliably reported to have taken the position that they will continue to meet competitive prices established by secondary outlets of other marketers.

Mountain View

Completion of O'Kane & Brain's No. 1 Wright-Bloemer a few days ago brought the potential production of the Mountain View Field of Kern County above 10,000 bbls. per day for the first time since its discovery, and judging by the amount and scope of work under way it appears quite probable that the potential of the field will be somewhat above the 15,000-bbl. mark before the close of the month. On April 1 Umpire Pemberton fixed the potential of the field at 8,500 bbls. per day, which appears to be a conservative figure. O'Kane & Brain's new producer was finished at 5,665 feet and the 235 feet of 6⅝-inch liner is perforated at 5,625-5,665 feet and at 5,470-5,605 feet. It registered an initial daily production of 1,740 bbls. of 28.1 gravity oil and 930,000 feet of gas.

Recent developments definitely reveal the absence of a normal anticlinal structure in the Mountain View Field and all indications point to a rather substantial accumulation along a projected fault extending in a northwest to southeast direction. It is interesting to note that no commercial producer has yet been completed north of the generally recognized position of the Mountain View fault zone. In the eastern end of the field, well logs indicate the probable existence of one or more cross faults and this probably accounts for the wide divergence between the production of wells located side by side. These faults render correlation work rather difficult, particularly in view of the marked unconformity of subsurface conditions.

The Union Oil Co., Standard Oil Co. and Severns Drilling Co. are expected to finish their respective wells in the Mountain View Field during the next week or 10 days. Union is rigging up pumping equipment in No. 1 K.C.L., which failed to show sufficient gas to result in a natural flow. This well flows by heads from time to time and consequently should be good for about 150 bbls. of clean oil per day. Standard expects to make a production test on No. 1 Nichols shortly and the outlook appears rather good for a well which should do about 2,000 bbls. per day. The Severns Drilling Co. is expected to show a rather substantial initial daily production as it is located in territory that has yielded several fine wells to date. Barnsdall is at present swabbing No. 1 Mott but the outlook is somewhat uncertain as the well does not have sufficient gas to show a natural flow. It is quite possible, however, that with additional agitation the well may show up better.

Deep Drilling

Two deep wells, General Petroleum's No. 1 Berry at South Belridge and Union's No. 1 Lillis-Welsh at Kettleman Hills, are expected to have a very pronounced effect on future drilling in San Joaquin Valley fields as both of the wells in question are especially significant from a geological standpoint. Union's deep well on the Lillis-Welsh property in the North Dome of Kettleman Hills is of unusual interest, aside from its extreme depth, because it may either prove or disprove the existence of Eocene production below the present productive Temblor. It is quite obvious that this well is very important as it may substantially increase the future recoverable oil of the state. This well is being cleaned out preparatory to being redrilled and deepened although the Union's field department does not believe that it will require much additional hole to make a producer once the bottom of the old hole has been reached.

The outcome of drilling operations in No. 1 Berry of the General Petroleum is of primary interest to oil men interested in San Joaquin Valley fields as the failure of this well to show commercial production will probably have a rather depressing effect on future work. The significance which attaches to the drilling of No. 1 Berry lies in the fact that if it is a failure it will have a tendency to explode the theory that Temblor production should be found in practically all fields located along the western rim of San Joaquin Basin. In this group of fields, Temblor production has been developed in North Belridge and in the North and Middle domes of Kettleman Hills. Lost Hills has taken on a rather dubious outlook and the South Belridge Field does not look very much better. It might not be amiss to say, however, that General Petroleum's No. 1 Berry has exceptional possibilities as it has been showing increasing gas pressure and may possibly show oil production.

Associated Oil Co. is ready to hang up tools in No. 1 Williamson, a deep test in the Lost Hills Field, due to the unfavorable outlook from a production standpoint. This well will probably not be abandoned for the present as some other operator may desire to prosecute further work in which event some kind of an equitable deal might be worked out. No. 1 Williamson has been drilled by the Associated in conjunction with the Richfield Oil Co. and the expenditure was entirely justified because both companies would have profited immensely if deep production had been developed. With Lost Hills apparently out of the picture as far as deep production is concerned, much depends on the outcome of drilling on No. 1 Berry. Projected drilling of deep tests at Midway-Sunset and McKittrick may be retarded for several years unless the General Petroleum succeeds in finishing its deep test in the South Belridge Field as a commercial producer. The persevering efforts of this company has commanded the attention of operators, especially those who have at one time or another done some pioneering work.

Kettleman Hills

The Kettleman North Dome Association chalked up two more excellent completions in the North Dome during the current week and another potential producer is expected to be finished within the next fortnight. Kenda's new wells were No. 72-2P in the Felix area and No. 4-20J in the Huffman section of the field. The former, bottomed at 8,142 feet and finished with a 6⅝-inch liner carrying 760 feet of perforations, was brought in flowing 1,730 bbls. of 34.1 gravity oil and 12,360,000 feet of gas per day. Top of the lower variegated was picked up at 7,781 feet and top of the Felix silt was logged at 8,120 feet. No. 4-20J was bottomed at 8,850 feet and brought in flowing 3,805 bbls. of 34.5 gravity oil and 3,500,000 feet of gas per day. Top of the lower variegated was logged in this well at 8,626 feet and the hole was finished with a 6⅝-inch liner including 387 feet of perforated landed on bottom and cemented through perforations at 8,462 feet. Kenda's No. 41-32J, finished last week, subsequently built up from 2,470 bbls. per day to 11,592 bbls. and gas production increased to 10,960,000 feet per day. The Association has staked location for a new well to be drilled out on the south flank in Section 4-22-17 and material should be placed on ground in the immediate future.

The Standard Oil Co. has apparently decided that deep driling is justified out on the south flank as the company, which filed an abandonment notice on No. 87-13P some time in January, has now decided to deepen the hole. This well has been standing suspended at 6,218 feet and is located just inside the outer or blue line which is believed to enclose the maximum amount of possibly productive acreage in the North Dome. Resumption of work on this well, together with acquisition of No. 1 Lillis-Welsh by Union Oil Co. has revived interest in the possibility of Eocene production in the Kettleman North Dome Field.

Association Production

The Kettleman North Dome Association produced 9,073,325 bbls. of crude oil, 62,489,387 gallons of natural gasoline and 49,711,424,000 feet of gas in the North Dome of Kettleman Hills during the year 1933. These figures compare with 9,322,463 bbls. of crude oil, 53,820,315 gallons of natural gasoline and 37,240,733,000 feet of gas in 1932. It is interesting to note that although production of natural gas and natural gasoline during 1933 was larger than in 1932 production of crude oil was substantially less. At the end of 1933, Kenda had 26 completed wells capable of producing in addition to one well that had been previously finished by a member of the association. The total of 27 wells now controlled by the Kettleman North

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	Apr. 1		Mar. 25			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Fuel oil	209,450	29,921	81,632	11,662	4,017,604	379,473
Diesel and gas oil	.....	.....	207,345	29,621	700,489	926,394
Gasoline	113,268	16,181	163,261	23,323	1,347,139	1,701,652
Kerosene	.....	.....	45,544	6,506	348,665	411,076
Other finished oil	.....	.....	.....	.....	.....	30,635
Other unfinished oil	.....	.....	.....	.....	.....	72,584
Foreign exports—						
Crude oil	51,654	7,379	149,331	21,333	1,766,978	1,720,246
Fuel oil	415,638	59,377	566,726	80,961	3,133,775	1,873,132
Diesel and gas oil	91,313	13,045	116,737	16,677	1,054,345	823,528
Gasoline	.....	.....	129,963	18,566	1,001,749	1,239,303
Kerosene	.....	.....	7,950	1,136	234,893	435,674
Other finished oil	.....	.....	3,529	504	3,529	.....
Other unfinished oil	.....	.....	.....	.....	34,363	.....
Coastwise-domestic—						
Crude oil	324,768	46,395	127,343	18,192	1,679,443	3,425,312
Fuel oil	260,221	37,174	478,026	68,289	3,250,422	2,880,973
Diesel and gas oil	21,430	3,061	67,547	9,650	224,515	407,166
Gasoline	402,237	57,462	290,391	41,484	2,683,392	2,954,127
Kerosene	1,771	253	10,324	1,475	41,923	64,375
Naphtha distillates	.....	.....	.....	.....	.....	27,651

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Diesel and gas oil	.....	.....	.....	.....	313,695	280,531
Gasoline	.....	.....	.....	.....	72,625	239,016
Kerosene	.....	.....	37,123	5,303	197,498	311,855
Lubricants	.....	.....	.....	.....	8,310	8,250
Foreign exports—						
Crude oil	71,172	10,167	.....	.....	517,100	398,411
Fuel oil	19,814	2,831	17,686	2,527	234,129	190,939
Diesel and gas oil	84,074	12,011	90,672	12,953	580,136	300,145
Gasoline	65,926	9,418	27,019	3,860	962,634	1,152,418
Kerosene	.....	.....	.....	.....	212,195	250,906
Lubricants	22,951	3,279	.....	.....	58,458	52,456
Other unfinished oil	5,750	821	.....	.....	5,750	4,881
Coastwise-domestic—						
Fuel oil	.....	.....	188,908	26,987	884,677	785,253
Diesel and gas oil	.....	.....	34,767	4,967	87,029	142,550
Gasoline	45,690	6,527	198,316	28,330	1,038,638	973,753
Kerosene	2,136	305	6,963	998	36,716	50,069

Dome Association are, according to conservative estimates, capable of producing 124,363 bbls. of crude oil per day. In contrast with this large potential, Kenda's actual production during December, 1933, totaled 22,769 bbls. per day.

Lincoln Drilling Co. has acquired the Ferguson lease, comprising 1,840 acres on the south flank of the North Dome and while no immediate drilling is contemplated, a deep test will eventually be drilled on the property in question if developments warrant. Acquisition of this lease by Lincoln is of special significance in view of present deep drilling by Union Oil Co. on the Lillis-Welsh property and Standard's intention to undertake similar deep drilling in a well located in close proximity to Lincoln's Ferguson lease. The deal between Lincoln and Roy N. Ferguson includes, in addition to the acreage, a well drilled to 7,300 feet by Bolsa Chica and associates. This well is well located with respect to the acreage but is just outside the acreage limits established by engineers who outlined the probable limits of production at the time the Kettleman North Dome was organized. This well was never completed in the Temblor but the Department of the Interior approved claims of discovery and issued the usual certificate of compliance. This property, while it may not look very good to some at present, may prove of considerable importance at a later date if the Eocene is found highly productive as a result of deep drilling.

Tideland Litigation

The deadline for adjudication of tideland drilling established by the state has just expired and unless some concession is made in view of attempts to organize an association to operate properties we may anticipate aggressive action by the director of finance. Supplementary to the omnibus filed a few weeks ago, the state this week filed a damage suit for $100,000 against the O. R. Howard Co., a Texas company, and 28 other defendants for alleged tideland drilling which involved trespass. Other suits are pending and are expected to be filed in the immediate future and according to state's representatives the state will not only demand abandonment of the well but will also sue for damages which involve the full value of all oil and gas produced. In order to keep an accurate check on production and the amount of royalty due the state, the Department of Lands has leased suitable quarters at Huntington Beach and will compile the necessary records. Arthur E. Alexander, who has been inspector of petroleum production in the Santa Barbara district, is in charge of the office at Huntington Beach. Arthur Chapman will be office superintendent and will be assisted by Thomas Stipp and John H. Hume.

Investigation of overproduction activities and movement of hot oil out of the Huntington Beach Field of Los Angeles Basin is nearing completion and reports indicate that Petroleum Administrator Ickes will proceed immediately to prosecute all violators. The force of investigators has moved to Long Beach and will make a survey to determine the extent of overproduction and amount of hot oil moving out of the field. Tentative plans call for the filing of complaints against approximately 58 operators in the Long Beach Field for overproduction in violation of the curtailment program. The San Joaquin Valley Oil Producers Association, asserting that thousands of barrels of hot oil is being produced in violation of orders, passed a resolution this week asking the petroleum administrator to vigorously prosecute all violators in order that the proration program may be respected and obeyed. At the meeting, attended by a representative group of operators, it was openly admitted by two operators that they had been approached by independent refiners of Los Angeles Basin for the purchase of illegally produced oil at 60 cents per barrel for refining crude. These operators refused to deliver any oil to this group of chiselers. Reports during the past two weeks indicate that jobbers have been in the habit of negotiating for hot oil and upon taking delivery sell it to smaller refiners as legitimate oil.

Santa Fe Springs

The Union Oil Co.'s No. 5 Farwell in the Santa Fe Springs Field revived memories of the old days when it got beyond control this week and blew for a period of 10 hours before sanding up. This well, a recent spud, encountered the dry gas zone at 1,390 feet a little below the point at which casing had been cemented. This dry gas zone proved quite a menace during early development of the field and resulted in a number of disastrous blowouts and several wells were lost by subsequent fires. The zone is now pretty well depleted but still has sufficient kick to cause trouble if not watched. During the current week, the Union recompleted No. 22 Alexander after plugging back the hole to 7,205 feet from which depth it was returned to production doing 100 bbls. per day.

Deep zone exploitation in the Inglewood Field of Los Angeles Basin is getting under way in good shape and we may anticipate additional drilling within the next few weeks. The Standard is starting three new wells, one each on the Baldwin, Vickers and Los Angeles Investment Lease No. 1. This field will show increased activity during the remaining months of 1934 although the development agreement ratified by operators precludes unrestricted drilling. Under the terms of this drilling agreement,

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status:
Clayton, G. L., No. 1 Clearwater, Los Angeles Co.	31- 3-12	5,700	sd. sh. drilling
Pacific Dev. Co., No. 1 Watts, Los Angeles Co.	16- 3-13	3,879	suspended
Clark & Miller, No. 1 Hermosa, Los Angeles Co.	31- 3-14	mtl.	building rig
Dominguez Oil Co., No. 1 Dominguez, Los Angeles Co.	34- 3-13	4,076	sd. sh. drilling
Quinn, J. B., No. 1 Dominguez, Los Angeles Co.	3-14-13	4,121	cleaning out
Mutual Oil Co., No. 1 Dominguez, Los Angeles Co.	3- 4-13	4,669	500 B/D
Kelly & Son., No. 1 Torrance, Los Angeles Co.	7- 4-13	6,435	suspended
Wehrman, J. K., No. 1 San Pedro, Los Angeles Co.	14- 5-14	1,597	redrilling
Nudson, T. T., No. 1 Inglewood, Los Angeles Co.	17- 2-14	1,983	O.S. drilling
Pacific Western, No. 16 Inglewood Deep, Los Angeles Co.	8- 2-14	2,900	1,300 B/D
Scientia Oil Co., No. 1 Inglewood, Los Angeles Co.	7- 2-14	rig	suspended
Standard Oil Co., No. 1 Inglewood Deep, Los Angeles Co.	7- 2-14	rig	rigging up
Kieps Oil Co., No. 1 Inglewood, Los Angeles Co.	17- 2-14	rig	rigged up
Wilshire, No. 2 Potrero Deep, Los Angeles Co.	27- 2-14	5,600	sd. sh. drilling
Community Oil Co., No. 1 Montebello, Los Angeles Co.	34- 1-11	7,260	fishing
Community Oil Co., No. 2 Montebello, Los Angeles Co.	34- 1-11	....	material
Universal Consd., No. 2 Montebello Deep, Los Angeles Co.	5- 2-11	6,950	suspended
Universal Consd., No. 3 Montebello Deep, Los Angeles Co.	5- 2-11	7,570	gr. sd. drilling
Texas Co., No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	5,731	sd. sh. drilling
Standard, No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	4,111	sd. sh. drilling
St Helens, No. 1 Montebello Deep, Los Angeles Co.	6- 2-11	1,276	sd. sh. drilling
Frontier Oil Co., No. 1 Pico, Los Angeles Co.	7- 2-11	rig	rigging up
Midfield Oil Co., No. 1 Pico, Los Angeles Co.	19- 2-11	2,674	hd. sh. drilling
Rex Anglin Dev. Co., No. 1 Los Nietos, Los Angeles Co.	29- 2-11	150	suspended
Eldorado Pet., No. 1 Puente, Los Angeles Co.	30- 2- 9	3,116	suspended
Barstow Oil Co., No. 1 Saugus, Los Angeles Co.	35- 5-16	2,136	suspended
International Dev. Co., No. 1 Saugus, Los Angeles Co.	34- 5-16	rig	rigging up
Alexander, W. L., No. 1 Sunland, Los Angeles Co.	7- 2-14	1,020	hd. sd. drilling
Black Eagle Oil Co., No. 1 Huntington, Orange Co.	tideland	3,962	fishing
Naoil Co., No. 1 Newport, Orange Co.	29- 6-10	6,461	hd. sd. drilling
Recovery Oil Co., No. 1 Sunset Beach, Orange Co.	16- 5-11	3,400	suspended
Superior Oil Co., No. 1 Sunset Beach, Orange Co.	19- 5-11	5,850	abandoned
Placentia Dev. Co., No. 1 Placentia, Orange Co.	31- 3- 9	4,531	redrilling
Mid-Rich Drlg. Co., No. 1 Atwood, Orange Co.	26- 3- 9	360	suspended
Rubens, Sy., No. 1 Atwood, Orange Co.	19- 3-10	3,368	suspended
Bardeen Pet., No. 1 Coyote, Orange Co.	13- 3-10	3,450	hd. sd. drilling
Great American Pet., No. 1 Chino, San Bernardino Co.	18- 2- 8	2,642	suspended
Great American Pet., No. 2 Chino, San Bernardino Co.	18- 2- 8	2,710	reaming
Tehama Pet., No. 1 Santa Ana Canyon, San Bernardino	33- 2- 8	1,295	test WSO
San Diego Pet. Co., No. 1 Chula Vista, San Diego Co.	32-18- 2	172	sd. sh. drilling

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operators have been given a certain number of wells that may be drilled and it is tacitly understood that all operators will be bound by the agreement, which has been approved by the petroleum administrator and is therefore enforceable.

Huntington Beach

Wilshire Oil Co. finished a new well in the town lot section of the Huntington Beach Field when No. 9-A fee was brought in on a compressor doing 619 bbls. of 25.3 gravity oil per day from 5,580 feet after the hole had been finished with a 4¾-inch liner including 560 feet of perforated. This just about winds up the Wilshire's tideland drilling program at Huntington Beach. The Standard Oil Co. is working on two potential producers in the town lot section but neither is expected to register large production as they are being drilled as straight as possible. Upon completion of these wells the company will spud in No. 68 on lease B and No. 22 P.E.

Mutual Oil Co. chalked up a nice well in the Dominguez Field of Los Angeles Basin early this week when No. 1 Carpenter was brought in on a compressor doing 510 bbls. of 28.7 gravity oil per day from 4,669 feet after the hole had been finished with a 4¾-inch liner carrying 143 feet of perforated. The Shell Oil Co.'s No. 52 Reyes, finished a week ago, has cleaned up in good shape and showed a potential of 868 bbls. of 32.3 gravity oil. This well showed a rather high water cut upon completion but turned out to be a good producer.

Montebello

Deep zone exploitation in the Montebello Field of Los Angeles Basin is going ahead according to schedule although the failure of the Universal Consolidated Oil Corp. to pick up the pay in No. 1 Repetto may prove somewhat of a deterrent. This well at 7,540 feet is over 500 feet deeper than No. 1 Cruz, the deep zone discovery well, which was finished at 7,010 feet. The Standard, with four strings of tools in operation is erecting rigs for three more, and from appearances intends to prosecute aggressive development although the company does not desire to stimulate production in this field. The St. Helens Petroleum Co. has been experiencing considerable difficulty with No. 6 P. & B. but is expected to overcome the retarding problem in the near future as this company has drilled too many wells to be disturbed by mechanical trouble.

The Standard Oil Co., which has been pursuing an aggressive but conservative drilling policy in the West Coyote Field of Los Angeles Basin, is running six strings of tools in this district at the present time. The Standard is undertaking this work in order to systematically develop its properties and at the same time maintain its drilling crews as an actively operating unit. The company has been attempting to keep its men on the payroll and has succeeded admirably even though in many cases drillers and field men have been cut down to four and one-half days per week. Employes of the company, recognizing the urgency of the situation, have responded in a gratifying manner as they are cognizant of the fact that they will be kept on duty as long as possible and will consequently retain their seniority rating.

Mount Poso

Golden Bear Oil Co. got a pleasant surprise during the early part of the week when No. 4 Grimes in the Mount Poso Field blew out for 15 minutes while the crew was testing the water shutoff on the 10¾-inch landed and cemented at 2,587 feet. As a general rule, operators do not like to see a blowout but in this case it indicated that the well in question has unusual possibilities. The flow was subsequently killed by the introduction of water and preparations are now under way to determine its potentiality. The General Petroleum Corp., which recently finished No. 9 Heisen as a commercial producer in this field, is making preparations to complete No. 28 Glide in the upper zone at 1,600 feet. This well ran into bottom water at the depth mentioned and has accordingly been plugged back to 1,567 feet. The Union Oil Co. has run liner in No. 10 S. & M. in this field and should make a production test of this well within the next few days. In the Round Mountain Field of Kern County, the Rex Oil Co. has started rig construction for No. 2 to be drilled in Section 6-28-29.

Ventura Avenue

Property Service Corp., a Ralph Lloyd company, has not yet finished road construction to the site of the outpost which the company plans to drill in the extreme eastern part of the Ventura Avenue Field but good progress is being made. East of this well, E. J. Preston has taken a lease on 1,000 acres of the Sexton ranch, but drilling operations are not expected to get under way for several months or at least until Preston concludes present drilling operations on a tideland project in the Huntington Beach Field. In the Santa Barbara Mesa Field, Fred Cole has recompleted his No. 1 McMillan pumping 155 bbls. of 17.8 gravity oil per day from 2,133 feet. This well blew in early in February flowing 1,760 bbls. per day, but like other wells in this field it failed to hold up. In the Ojai section of Ventura County, the Garner Royalties Co. finished its No. 1 pumping 101 bbls. per day from 1,487 feet.

Gulf Coast Fields

(Continued from Page 65)

is also reported to have leased 6,500 acres of submerged land which adjoins the ranch. The company has had a seismograph crew working the area during the past two months.

At Stratton Ridge in Brazoria County, Amerada-Rycade's No. 5 Seaborn, topped sand at 7,101 feet and was last reported coring sand at 7,109 feet. Shell Petroleum Corp.'s No. 2 Haury at Danbury was coring sand with streaks of shale at 4,744 feet.

Galveston County

In Galveston County, George K. Spoor has completed derrick for No. 1 Maco Stewart which will be a 6,000-foot test located in the W. K. Wilson Survey, about 4 miles south of Dickinson. It is reported Humble Oil & Refining Co. will drill a deep test about 3 miles north of the above location.

Jackson County

In Jackson County, Encio Gas Co.'s No. 1 Toney, in the Raymon Musquiz Survey, was drilling below 5,325 feet. Atkins & O'Neil's No. 1 Davis, in I.&G.N. Survey No. 18, was drilling 5,519 feet.

Jefferson County

Sun Oil Co.'s No. 1 H. Long, Jefferson County wildcat, was reaming 6,407 feet. It had sand from 6,389-6,407 feet and showed salt water on a drill stem test.

Liberty County

Miramar Oil Corp.'s No. 1 Chow & Jacobs, 2,200 feet east of nearest production in the Hankamer Field in Liberty County, has been abandoned as dry with total depth of 4,808 feet in sandy shale. Before deepening, it came in swabbing at the rate of 200 bbls. daily at 4,563 feet, but went dead. In the Hull Field, Sun Oil Co.'s No. 5-A Carr has been completed for 41 bbls. per hour through one-half inch choke. It had sand from 4,910-36 feet and bottomed hole at 4,941 feet.

SOUTH LOUISIANA

On the Bosco prospect in Acadia Parish, Superior Oil Co. of California's No. 1 P. O. Hermandes was preparing to run 7-inch casing. Total depth is 8,905 feet. This is somewhat of a mystery well and no information could be obtained as to what the well had encountered at this depth.

About one-quarter mile west of production at Sulphur in Calcasieu Parish, Union Sulphur Co.'s No. 1 Noble had set screen with total depth of 5,06) feet. The well drilled about 10 feet of sand and possibilities are said to be bright for a producer, which would be the first production off of their fee tract. In the west extension area of the Lockport Field Magnolia Petroleum Co.'s No. 11 Bordages was drilling 7,536 feet. In the same area Union Sulphur Co.'s No. 2 Moss was preparing to set screen with total depth of 6,666 feet in oil sand.

After drilling 2,391 feet of heaving shales, an unusually large section, Union Sulphur Co.'s No. 1 Vincent, at Vinton, has been plugged back to test the shallower sands. It encountered the heaving shale at 4,162 feet and drilled to 6,553 feet, and has since been plugged back to 4,052 feet in sand with a slight show of oil.

Activity at Leesville

An active drilling campaign is in progress at Leesville in LaFourche Parish, with 10 rigs at present drilling in the field. Emerald Petroleum Corp.'s No. 1 State Bayou LaFourche was completed the past week for 960 bbls. daily through three-eighths inch choke at 3,685 feet.

On the northeast flank of production in the Hackberry Field in Cameron Parish, Texas Co.'s No. 10-B State was preparing to run 40 feet of screen with total depth of 7,287 feet. Texas' No. 11-B State has been completed for 330 bbls. net oil daily at 6,092 feet.

At Roanoke, in Jefferson Davis Parish, Humble Oil & Refining Co.'s No. 2 De-Vilbiss was plugging back to 7,300 feet. This test was formerly carried to 8,423 feet. Shell Petroleum Corp.'s No. 1 Kratzer was drilling shale 8,185 feet.

In the west extension area of the Iowa Field in Calcasieu Parish, Magnolia Petroleum Co.'s No. 2 James Bowman has drill pipe stuck at 7,125 feet, which is about 150 feet deeper than the average deep pay horizon in the field. In the east extension area of the field, Barnsdall Oil Co.'s No. 4 Fontenot has been completed for 1,500 bbls. daily at 6,941 feet.

Continental Oil Co. and others' No. 1 Standard of Kansas, in St. Martin Parish, was drilling shale 7,911 feet.

In the Dry Creek area of Beauregard Parish, Humble Oil & Refining Co.'s No. 1 Long Bell, was drilling shale 8,684 feet. Also along the Conroe trend, F. W. Martin has set 10-inch casing at 420 feet in No. 1 J. E. Cochran. This Cockfield sand test is about 6 miles south of Merryville, in the western part of the county, and on a block of 8,000 acres.

Carter Oil Co. Raises Wages 6 to 20 Per Cent

The Carter Oil Co. has made an adjustment of wages of its employes which will involve an additional expenditure by the company of $200,000 per year, based on the existing volume of the company's operations.

Representatives of the employes recently met in conference with representatives of the management and agreed upon the new wage schedule which was made effective on April 1. The joint meetings were called after an investigation of wage matters had been made by a special committee of employes and members of the management.

The percentages of increase varied from 6 to 20 per cent, with different classifications but, on the whole, the larger wage advancements are applicable to the lower-paid groups of employes. Some salary adjustments for field supervisory forces are also under consideration by the management, the joint conference not having jurisdiction in matters relating to that group.

The Carter Oil Co.'s system of collective bargaining has been in effect a long time. All matters of wages, hours and working conditions have been worked out harmoniously in joint meetings of representatives of the company and of the large number of workers in its service.

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status:
General Pet., No. 9 Capitan, Santa Barbara Co.	32- 5-30	rig	rigging up
Shell Oil Co., No. 2 Capitan, Santa Barbara Co.	32- 5-30	1,771	pumping test
Lincoln Drlg. Co., No. 3 Summerland, Santa Barbara Co.	21- 4-26	2,803	suspended
Dietzmann, J., No. 1 Summerland, Santa Barbara Co.	16- 4-26	3,829	redrlg. 3,770
Fairview Oil Co., No. 1 Purisima, Santa Barbara Co.	18- 7-34	2,186	suspended
Barnsdall-Rio Grande, No. 8 Doty Elwood, Santa Barbara	15- 4-29	4,868	fishing D/P
Signal O. & G. Co., No. 2 Elwood, Santa Barbara Co.	tideland	5,225	Seape—drlg.
East Elwood Pet. Co., No. 1 Elwood, Santa Barbara Co.	14- 4-29	rig	rigging up
Cuyama Oil Co., No. 1 Cuyama, Santa Barbara Co.	12-10-27	4,002	suspended
Union, No. 1 Santa Maria, Santa Barbara Co.	19-10-33	1,837	sd. sh. drilling
Richfield, No. 3 Rincon fee, Ventura Co.	17- 3-24	2,557	suspended
Woodrow Pet., No. 1 Rincon, Ventura Co.	4- 3-24	7,612	redrilling
Continental, No. 3 San Miguelito, Ventura Co.	23- 3-24	mtl.	building rig
Hancock Oil Co., No. 1 Fillmore, Ventura Co.	13- 4-19	3,357	perforat. pipe
Oil Ridge Oil Co., No. 1 Fillmore, Ventura Co.	1- 4-19	642	cleaning out
Oak Mountain Oil Co., No. 1 Sespe, Ventura Co.	1- 4-20	2,697	br. sh. drilling
Kneiper & Atha, No. 1 Bardsdale, Ventura Co.	7- 3-19	1,710	suspended
Williamson & Donaher, No. 1 Simi, Ventura Co.	36- 3-18	790	fishing
Dabney, H. R., No. 1 Simi, Ventura Co.	22- 2-18	1,505	suspended
Midlands Pet., No. 1 Ojai, Ventura Co.	9- 3-23	7,830	redrill 7,460
Prop. Service Corp., No. 1, Ventura Co.	24- 3-23	....	building road
Laing & Jacobs, No. 1 Shiells, Ventura Co.	32- 4-19	721	suspended
Kirk, W. A., No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	1,954	br. sh. drilling
Mosher, J. W., No. 1 Santa Paula, Ventura Co.	22- 4-21	1,900	br. sh. drilling
Las Posas Pet., No. 1 Las Posas, Ventura Co.	22- 3-20	6,135	suspended
International Oil Developers, No. 1 Conejo, Ventura Co.	33- 2-20	3,060	hd. sd. drilling
Hub Pet. Co., No. 1 Gould Hills, Kern Co.	22-29-21	6,840	suspended
Shell Oil Co., No. 1 Gould Hills, Kern Co.	21-29-21	3,671	sd. sh. drilling
Standard Oil Co., No. 1 McKittrick, Kern Co.	15-30-22	1,062	sd. sh. drilling
Casa Mira Oil Co., No. 1 Belridge, Kern Co.	29-28-20	4,982	cleaning out
General Pet., No. 1 Belridge, Kern Co.	30-28-21	11,000	br. sh. drilling
Union Oil Co., No. 18 Belridge, Kern Co.	36-27-20	6,317	sd. sh. drilling
Wrenn, J. J., No. 1 Antelope Plain, Kern Co.	32-25-17	1,701	suspended
North American, No. 1 Jasmine, Kern Co.	25-25-27	2,064	abandoned
Associated, No. 1 Lost Hills, Kern Co.	2-26-20	7,851	hot salt wtr.
Inland Pacific, No. 1 Semi-Tropic, Kern Co.	29-25-21	1,581	sd. sh. drilling
Howells Bros., No. 1 Round Mountain, Kern Co.	32-28-29	2,206	hd. sd. drilling
Semaphore Oil Co., No. 1 McVan, Kern Co.	14-27-27	581	sd. sh. drilling
Shafter Oil Co., No. 1 Shafter, Kern Co.	8-28-25	3,491	sd. sh. drilling
Ohio Oil Co., No. 1 Buena Vista Lake, Kern Co.	31-31-26	6,700	sd. sh. drilling
Caravel Pet., No. 1 Edison, Kern Co.	19-30-30	1,440	fishing
Alta Oil Co., No. 1 Union Avenue, Kern Co.	6-30-28	6,457	recemented
Hall, C. C., No. 1 Mountain View, Kern Co.	25-30-28	rig	rigged up
Severns Drlg. Co., No. 1 Mountain View, Kern Co.	24-30-28	5,381	sd. sh. drilling
Union Oil Co., No. 1 Mountain View, Kern Co.	15-30-28	5,787	plug 5,327
Hogan Pet. Co., No. 4 Mountain View, Kern Co.	29-30-29	1,944	sd. sh. drilling
Labadie, E. L., No. 1 Mountain View, Kern Co.	29-30-29	5,888	plug 5,813 ft.
Standard, No. 1 Mountain View, Kern Co.	19-30-29	5,200	formation test
Commanche Oil Co., No. 1 Commanche, Kern Co.	15-32-29	2,750	sd. sh. drilling
Badger Oil Co., No. 1 Wheeler Ridge, Kern Co.	31-11-19	5,851	sd. sh. drilling
Russ Oil Synd., No. 1 Kingsburg, Fresno Co.	20-12-11	4,044	suspended
Bergman, Harry, No. 1 Kingsburg, Fresno Co.	12-12-11	5,341	sd. sh. drilling
Graham & Loftus, No. 1 Raisin City, Fresno Co.	20-15-18	5,906	suspended
Emerich Oil Co., No. 1 Mendota, Fresno Co.	35-13-13	4,575	suspended
Western Gulf, No. 1 S. P., Fresno Co.	15-17-15	7,893	cleaning out
Hogan Pet. Co., No. 1 Joaquin Ridge, Fresno Co.	28-20-16	6,605	suspended
Kent & McDonald, No. 1 Carrizo Plains, San Luis Obispo	3-22-22	3,830	suspended
Farrel Pet., well No. 1, San Luis Obispo Co.	18-31-12	1,095	cleaning out
Willet Oil Co., No. 2 Cholame, San Luis Obispo Co.	10-25-15	rig	rigged up
Commonwealth Consd. Gas Co., No. 1 Tulare Lake, Kings	21-22-20	1,332	hd. sh. drilling
Tulare Basin Oil Co., No. 1 Tulare Lake, Kings Co.	2-23-19	1,192	will deepen
Tulare Basin Oil Co., No. 2 Tulare Lake, Kings Co.	2-23-19	1,200	suspended
Douglas, J. M., well No. 1, Monterey Co.	36-22- 9	2,696	br. sh. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	5- 2-10	4,760	hd. sd. drilling
Pacific Northern Oil Co., No. 1 Guinda, Yolo Co.	23-12- 3	6,760	hd. sd. drilling
Buttes Oilfields Co., No. 1 Marysville, Sutter Co.	35-16- 1	2,731	gas—shut in
Buttes Oilfields Co., No. 2 Marysville, Sutter Co.	35-16- 1	4,320	suspended
Milham Exploration Co., No. 1 Tracy, San Joaquin Co.	5- 4- 5	2,904	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	3,790	suspended
Mid-Valley Oil Co., No. 1 Orland, Tehama Co.	14-24- 3	....	location
Tehama Pet., No. 1 Murdock, Glenn Co.	10-22- 5	100	suspended

Seven Completions in Porter Township District; One Estimated Good for Over 5,000 Bbls.

By PAUL A. ELLIOTT
Staff Correspondent, Michigan Fields

MUSKEGON, Mich., Apr. 16.—The Porter Pool bounded back into undisputed leadership in Michigan last week with the completion of seven new Dundee oil wells aggregating slightly more than 7,000 bbls. initial production, or an average of about 1,000 bbls. daily. Three other completions added a small gasser in Vernon Township, a duster in Vernon and an unsuccessful wildcat in Egelston Township, Muskegon County.

In Porter Township, Midland County, about 70 rigs are drilling despite the spring breakup which made many gravel roads nearly impassable. Five of the new Porter producers were brought in by the McClanahan and Pure Oil Co.

Large Producer Completed

The McClanahan company completed one of the largest new producers in several months and one of the best in the newly developing Sections 20 and 21, now resulting in an extension of the field in its No. 2 Norman and Cecile Breu, SE SE NE Section 20-13n-1w, which made 150 bbls. in 10 minutes, more than 230 bbls. during the first hour and was estimated good for more than 5,000 bbls. a day. No. 2 Breu blew in out of control lodging the tools in the hole and forcing drillers, showered with oil, to cut the line to make it possible to shut in the gusher. Dundee limestone was topped at 3,388 feet, oil at 3,413 feet and drilling suspended at 3,430 feet.

W. L. McClanahan, head of the company, who was seriously injured and lost his wife in the first disastrous oil well fire in the Mount Pleasant Field, was on the derrick floor and soaked with oil like the drillers when the Breu roared in.

The same company's No. 1 S. M. Densmore, NE SE NW, also Section 20 forming a short northwest extension, came in for 400 bbls. initial topping the Dundee at 3,387 feet, the oil pay at 3,412 feet and drilling to 3,430 feet.

The largest of three new producers brought in by the Pure Oil Co. was No. 1 Everett Kleinhans, also in Section 20, SW NW NE, northwest of the Breu. Dundee limestone was first encountered at 3,383 feet and the well flowed 205 bbls. during the first five hours and was estimated good for about 850 bbls. initial.

Pure's No. 1 A. J. Neitzke, NW NW SW Section 21-13n-1w, Porter, flowed at the rate of 350 bbls. a day and was completed at a total depth of 3,425 feet. Same company's No. 4-A John H. Miller, SE NW SW Section 17-13n-1w, was brought in with an initial flow of about 200 bbls. at about 3,400 feet.

Daugherty and Markey's No. 2 Forbes, NW SW SW Section 22, topped the Dundee limestone at 3,380 feet but made only 45 bbls. a day when drilled to a total depth of 3,436 feet.

Strange and Fortney's No. 4 J. W. Campbell, SW NE SE Section 18, was reported in for 300 bbls. a day topping the Dundee at 3,381 feet and stopping at 3,420 feet.

Fred J. Turner and others' No. 1-"A" George Root, SE SW Section 21, Porter Township, was cased and drilling in as the week closed. Pure Oil Co.'s No. 5 P. O. Mates, NW NE SE Section 22, and its No. 4 Walter Neitzke, SW NE SE Section 21, are also nearing completion in the Dundee while Empire Oil & Refining Co.'s No. 1 Mabel Finch, NE SW SE Section 21, also is below the Traverse. Stork Oil Co.'s No. 1 W. C. Breu, NE NE SE Section 20, is another nearing completion in the Dundee in Porter.

Vernon Township

A small gas well was completed in the Michigan series by C. A. Weller in No. 1 Battle estate, SW SW NW Section 36-16n-4w, Vernon Township, Isabella County. It made about 600,000 feet a day.

Morris Van Keuren's No. 1 Bowman heirs, NE NE NW Section 27, struck oil in the top of the Dundee and shut down at 3,736 feet to run casing before drilling in. Templemayr and Tope's two wells, No. 3 Russell, NW SW NW Section 22, and No. 2 Woods, SW SW NW, same section, were still uncompleted though drilled to the top of the Dundee and shut down many weeks ago. Stoddard and Darke's No. 1 E. Brooks, SW SW SW Section 14, an attempted north extension of the Vernon Township Pool, was dry at 3,854 feet.

Muskegon Oil Corp. decided to plug and abandon its No. 1 William Vandermade, SW SE Section 26-10n-15w, Egelston Township, after testing shows of oil in the Monroe at 2,437-41 feet and in the Dundee at 2,295-2,301 feet. It was drilled to 2,458 feet.

Broomfield Township

Pure Oil Co.'s No. 2 Willie, SW NE NE Section 4-14n-6w, Broomfield Township, Isabella County, which a week before drilled through a good show of oil in the Dundee before going into water at 3,668 feet, 35 feet in the formation, was being plugged back to be treated with acid. The hole filled up about 350 feet with oil before it went to water. It was estimated to have had a flow of several hundred thousand feet of gas. J. E. Harding, trustee's No. 1 William Todd, NE NE NE Section 7, Broomfield Township, was drilling at about 1,450 feet and expected to strike the Michigan gas series within a short distance.

Four other Broomfield Township wells are drilling toward the shallow gas: George W. Olson, trustee's No. 1 John Fritz, Section 14; Guy M. Obenauer, trustee's No. 1 J. Diehl, Section 15; Mutual Oil & Gas Syndicate's No. 1 State Lease, Section 2, and R. L. Hill's No. 1 Mitchell-Keeler, Section 9. Two others are being started, Isabella Oil Development Co.'s No. 3 Bartlett-McClintic, Section 3, and Fletcher and Leyman's No. 1 Keeler-Mitchell, Section 10.

Mecosta County

J. M. Taggart and others' sixth well in the Austin Township, Mecosta County gas field, No. 6 Robert S. Fish, C NW NW Section 9-14n-9w, is drilling at more than 1,000 feet and probably will reach the Michigan gas sands within a week.

Columbia Oil & Gas Co.'s No. 1 Albert J. Dutmers, SW SE NE Section 23-13n-8w, Hinton Township, is a new Mecosta County test on a block of 4,000 acres.

Montcalm County

Daily Crude Oil Co. is below 2,000 feet in No. 2 H. Christensen heirs, in Section 10, Home Township, and is rigging up on No. 1 O. Blair, SW SE SE Section 11-11n-5w, Ferris Township. Theodore Oil Co. is rigging up its No. 1 John Sherwin, SW SW SW Section 13-12n-6w, a new Home Township test. W. J. Wilson's No. 1 Robinson, Section 27, Richland Township, is drilling at several hundred feet.

Ogemaw Township

T. F. Caldwell's No. 1 E. Hart, NW SW NE Section 19-22n-2e, West Branch, Ogemaw Township, drilled into the upper Traverse with a small showing and probably will be treated or drilled to the Dundee. Several Ogemaw wells are being tested for Dundee production but results have been somewhat disappointing.

Pure Oil Co.'s No. 1 Fisk is reported making about 25 bbls. a day on the pump with McClanahan's No. 1 Carroll probably good for the same. Two other wells drilled to the Dundee, McClanahan company's No. 1 Heintz in Ogemaw Township, and Doctor Hess' No. 1 Fisk well, an offset to Pure-Fisk, are scheduled for additional acid treatment.

Midland Wildcats

Two wildcats near the northern boundary of Midland County were within 100 feet of the Dundee and attracting interest for possible extensions or new producing areas. They are Sun Oil Co.'s No. 1 George Piegols, C SW SW Section 9-15n-2e, Larkin Township, and Lawson Oil & Gas Co.'s No. 1 Atkinson, C NE SW Section 21, Lincoln Township.

Bradner and Vaughan's No. 1 Brennan, Section 27, Porter Township, was nearing completion in the Dundee, 1 mile south of the big Porter Pool.

Saginaw County

Thomaston Oil Co.'s No. 1 Rust, Thomaston Township, Saginaw County, drilled through the Berea with no show of oil or water and is still drilling.

New Locations

Permits for two more tests in Saginaw County, one in Birch Run and one in Marion Township, were included in a list of eight issued during the week, indicating increased activity east of Porter Township. Seven different townships and five counties were represented. Only two were for new wells in Porter Township: C. W. Teater's No. 8 Joseph M. Wale, SW NW NW Section 22-13n-1w, and Fred W. Turner and others' No. 1-B Eugene St. Johns, NW SE SW Section 21-13n-1w.

Permit for J. M. Taggart and others' No. 6 Robert S. Fish, C NW NW Section 9-14n-9w, Austin Township, Mecosta County, nearing completion as a Michigan series gasser, was included.

Of the new Saginaw projects, one will be Crabon Oil Co.'s No. 1 August and Emma Berg, SE SE NE Section 26-1n-6e, Birch Run Township, a section where several tests have been made during recent years and a second well for the Crabon company. The other will be drilled by Brand-Marion Prospecting Syndicate on the George and Alice Ward lease, NW NE Section 12-10n-1e, Marion Township.

McClanahan Oil Co. took out a permit for another Ogemaw County test, No. 1 F. E. Boutell, SW SW SW Section 5-22n-1e, Ogemaw Township and county, and for No. 1 B. Wonsey, NE SE NE Section 33-15n-3w, Denver Township, Isabella County. W. Hunter Atha's No. 1 William Mahar, C SE SW Section 25-16n-4w, Vernon Township, Isabella County, completed the list.

All permits taken out in the name of the Dokenva Gas Corp. have been changed to the Empire Oil & Refining Co. Permit issued to C. L. Greening is to be changed to C. W. Teater's No. 1 Frank Neitzke, NE NW NE Section 28-13n-1w, Porter Township, Midland County. A correction made the location of Jasmid Oil Corp., trustee for the Jasmid-Wesensky Oil Syndicate: No. 1 Wezensky, NW NW SE Section 30-15n-3w, Denver Township, Isabella County.

Increased Development in Central West; Eight Small Completions in Indiana

By GEORGE A. WHITNEY
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 16.—Development work is showing an improvement in the Lima, Indiana, and Central Ohio areas of the Central West Field. The good weather may bring about additional drilling, especially in the Kentucky area, where work lagged during the winter.

In the Lima Field three wells were completed during the week, one a small oil well drilled by Wyandot Oil Co., in No. 2 on the Edward Reister farm, Section 34, Crawford Township, Wyandot County, with an initial of but 2 bbls. from the Trenton lime at a depth of 1,316 feet. In Crane Township, same county, Wyanco Oil Co.'s No. 4 on the Gotlieb Seiler farm, NW Section 34, was dry at 1,536 feet, and the same company is drilling No. 1 Edward Huffman farm, same section. Upper Sandusky Oil & Gas Co. found a small pay in the Trenton at from 1,330-72 feet, where it filled up 200 feet in the hole and will be given a shot, or may test with acid. The well is No. 5 on the N. and H. Saltzman farm, Section 28, Crane Township. Jones & Coyle are reported at 1,570 feet on the Harry Bardon farm, Section 5, same township, and drilling. Same company is shut down at 1,457 feet on the Edith Swerline farm, Section 21, Tymochtee Township, same county. Craig and others are drilling on the Oscar Berg farm, Section 28, same township.

In Seneca County, Horton & Banard drilled in a light gas well on the A. D. and M. M. Dondon farm, SE Section 4, Hopewell Township, at a depth of 512 feet. It was drilled to the Clinton lime with no further showing.

Huffman and others are drilling on the Jonathan Oates farm, Section 8, Pleasants Township, Hardin County. Branigan and others have a well starting on the J. H. Weldy farm, in Jackson Township, Van Wert County, and Jackson Oil Co. is drilling on the W. F. Pangle farm, Section 29, same county. Elmer Caudill is nearing the Trenton on the Daniel Steman farm, Section 30, same township.

CENTRAL OHIO

The Central Ohio Field shows an improvement in drilling operations as 11 wells were reported for the week and many more are starting up. In Ashland County, Robinson and others drilled in No. 7 on the W. S. Wolf farm, Section

(Continued on Next Page)

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Central West Fields

(Continued from Preceding Page)

16, Lake Township, with an initial of 3 bbls. Ohio Fuel Gas Co. is drilling No. 1 B. D. Swope farm, Section 22, Jackson Township, same county.

Coshocton County made the best oil showings of any of the new wells. Pure Oil Co.'s No. 2 Roy Hays farm, Section 5, Perry Township, produced an initial of 125 bbls. at 3,239 feet. In Newcastle Township, same county, Preston Oil Co.'s No. 2-1,536 on the R. L. Cochran farm, in the third quarter, showed an initial of 52 bbls. at 3,260 feet, and No. 2-1,537 on the William Frazee farm, an initial of 70 bbls. at 3,219-72 feet. Same company made a location for No. 3, same farm.

In Medina County Ohio Fuel Gas Co.'s No. 2-4,171 L. E. Stroshacker farm, Section 9, Liverpool Township, is a gas well. Same company is drilling No. 1-5,794 on the John Tomes farm, Lot 67, Columbia Township, same county. Wittmer Oil & Gas Co. has a rig in for No. 1 on the Thomas B. Foley farm, Lot 58, Grafton Township, same county.

Lacknett and others made a location on the William Adams farm, Section 13, Monroe Township, Knox County.

In Licking County Wehrle Gas Co.'s No. 2 on the Thomas Smith farm, Section 1, Franklin Township, was dry at 2,395 feet. In Mary Ann Township, C. O. Moore's test on the Anna Banks farm is a gas well at 778 to 793 feet. Settles Oil Co. is drilling No. 2 Oren B. Evans farm, Section 2, same township, and L. W. Rutledge, trustee's No. 1 Walter Hays farm, Section 17, Perry Township, produced 8 bbls. initial at 900 feet. Blue Rock Oil Co. is drilling No. 2 on the Walter Hoyt farm, Section 17, same township.

In Muskingum County, W. H. Atha's No. 6 fee farm, in the second quarter section, Falls township, was dry. Pure Oil Co.'s No. 1 P. A. Donaldson farm, Section 7, Jackson Township, same county, is drilling below 2,100 feet, and same company is drilling below 200 feet on the Oscar Mikesell farm, same section. Hopewell Oil & Gas Co. is drilling below 2,700 feet in No. 2 W. L. Helriggle farm, Section 9, Brush Creek Township.

Stark County

In Stark County, Ohio Fuel Gas Co.'s No. 1 Rachael Beltz farm, Section 7, and No. 2 Marchand farm, Section 11, Jackson Township, are new locations. In Plain Township, same county, Cable & Campbell's No. 4 on the Canton Suburban Realty Co.'s property, Section 20, is a gas well at 4,524 feet and Brendel Producing Co.'s No. 3 on the Canton Suburban Realty Co.'s property, Section 20, same township, is a gas well at 4,526 feet.

In Guernsey County, M. J. Purdy's No. 1 on the Alwin-Carter farm, in Section 15, Millwood Township, is a gas well at 1,420 feet. J. L. Miller is drilling on the F. W. Gray farm, Section 1, Washington Township, same county. Jewell & Muhlback's test on the Jesse Milhouse farm, Section 5, Monroe Township, same county, is below 3,100 feet. In Section 1, Wills Township, C. C. Wharton's test on the R. E. Frame and others' farm, Section 1, Willis Township, showed for 2 bbls. in the Berea sand at 1,358 feet, but will give the hole a shot. In the same township, Ferguson & McCullough are setting a machine for No. 2 on the Fred W. Foraker farm, Section 20. Same parties are shut down at 25 feet in No. 2 on the Thomas Stewart farm on account of an injunction, and No. 1 same farm is reported drilling below 650 feet.

In Belmont County, Frank King and others are drilling below 1,550 feet on the H. N. Fogle farm, Section 19, Somerset Township. Wilcox and others are drilling below 1,300 feet in No. 1 W. A. McTetrige farm, Section 1, Richland Township. Robert Morgan & Co. is drilling around 1,600 feet on the F. A. Magee farm, Section 20, same township.

In Gallia County, H. W. Bowers is drilling on the B. and C. Mink farm, Section 28, Addison Township.

In Athens County, Goddard & Blosser are drilling deeper No. 3 W. E. Henthorn farm, Section 17, Berne Township. Watkins & Jones are drilling on the N. S. Van Voorheis farm, in Alexander Township, same county. Standard Natural Gas Co. is drilling No. 2 Almada J. Young farm, Section 12, Waterloo Township, same county. Ohio Fuel Gas Co. probably will drill a location on the Clyde Smith farm, Fractional Section 31, Lodi Township.

In Huron County, J. E. Ringler is drilling on the Lewis Stiles farm, Section 17, Fitchville Township.

In Tuscarawas County, James Upham has a rig on the Alfred Uhlers farm, Section 4, Fairfield Township. In Washington Township, same county, Osford Oil & Gas Co. is drilling No. 6 on the Thomas B. and Rosie Shearer farm, in the third quarter lot.

INDIANA

The Indiana Field reports eight completions, but the results were not very good, there being but one oil well, two gas wells and five dry holes. Indiana has much gas territory yet to develop, and in the hunt for gas other areas are bound to find oil, but not in large producers.

Vanderburg and Perry Counties are now the leading areas for new developments. In Vanderburg County, J. S. Young, Jr., drilled a dry hole on the William Roth farm, SE Section 19, Center Township, at 957 feet, and a dry hole in No. 1 Schmodel farm, Section 20, same township, at 1,101 feet. Drake & Moffett are drilling No. 6 on the John and Mary Effinger farm, SW NW Section 33, same township. A. P. Taliaferro is drilling No. 3 on the P. L. and H. Niedhammer farm, NE Section 20, same township. V. S. Hollingsworth is shut down on the John Augermier farm, SE Section 19, at 925 feet. In Perry Township, same county, A. A. Douglass and others are drilling on the Christian R. Riggs farm, Section 15. In Scott Township, John H. McClurkin is drilling on the Grant Rowland farm, NW Section 14, and on the W. P. Woods farm, SE Section 16, also in Scott Township.

In Perry County, Bankable Oil Co. drilled Nos. 6 and 7 on the J. Leclire farm, NE Section 30, Anderson Township, which were dry holes at 560 feet. Anderson Creek Oil & Gas Co.'s No. 10 on the Alvin Frauchville farm, Section 30, same township, had 3 bbls. from the Elwern formation.

In Monroe County Petroleum Exploration Co. and Ohio Oil Co. are drilling on the Floyd S. Young and others farm, NE Sectin 7, Benton Township.

In Knox County, O. A. Thayer's test on the Burton Yates farm, NW Section 8, Busseron Township, was dry at 820 feet, and No. 2 drilling on the same farm. O. A. Thayer is also drilling on the Stenner & Aldridge farm, NW Section 8, same township and county.

In Harrison County, Indiana Utilities Corp.'s No. 2 on C. E. Gelback farm, SE Section 15, Webster Township, is a gas well at a depth of 715 feet.

In Randolph County, E. G. Henderson and others' test on the Harry Rhodes farm, NE Section 4, Jackson Township, is a gas well at 1,140 feet.

In Pike County, Ohio Oil Co. abandoned No. 1 on the J. P. Gladish farm, NW Section 30, Madison Township. Charles L. Divers has a fishing job at 1,360 feet in No. 3 Glendora Robling, Section 14, Logan Township. In Washington Township, same county, Bell and others are shut down at 1,298 feet on the Thomas Stone farm, NE Section 20, and A. E. Daviess and others are shut down at around 900 feet on the Robert Elkins farm, NE Section 17, same township.

In Sullivan County M. V. Yeager is drilling on the Link Norris farm, SW Section 8, Fairbanks Township. H. J. Seiner is drilling No. 1 H. E. Williams farm, SE Section 18, Hamilton Township. Pierson and others are shut down at 1,000 feet on the Ellery D. Hayden farm, Section 10, Turman Township, and

Charles W. Whitlock and others' No. 1 W. M. Medsker farm, Section 24, same township, at 1,300 feet.

In Gibson County, Robert Watson is shut down at 1,282 feet in No. 3 Laura Dillon farm, NW Section 18, Washington Township. In Patoka Township, M. G. Powell and others' have a rig on the A. F. Dugan farm, SW Section 14, and Nelson & Douglass made a location for No. 1, NE Section 26, same township. In Union Township, same county, P. E. Hill is drilling on the Raina Pumphrey farm in the NW Section 1.

In Hancock County, J. H. Snider is drilling on the Richard Milburn farm, Section 17, Brandywine Township. This is a gas producing area. In Spencer County, Mose Alexander is drilling No. 2 on the Linnie Lorch farm, SW Section 11, Hupp Township, at a depth of 600 feet.

The first three of five wildcat tests 5 miles southwest of Princeton are being drilled, rigs being set up and locations selected. The companies having charge of the prospecting are composed of P. E. Hill, Shinnston, W. Va.; Leach Brothers, Albion, Ill., and George E. Nelson, Indianapolis, Ind. A. A. Douglas, Evansville, is in charge of the field. The first test is on the Raina Pumphrey farm. This well is now down probably 200 feet. The second location is on the Sam Heston farm. A rig will soon be in operation. The third is on the Albert Dougan farm, west of the Heston place, and has rig up. The fourth well is to be located in Section 16-2s-11w. These are all in untried territory, although it has been under lease to other companies but recently re-leased. The results will determine whether the old Farmers Oil Co. wells west of Princeton, that have been producing oil for more than 30 years, extend in a southeast direction.

ILLINOIS

No completions were reported from the Illinois Field, the only change being a test by C. Hartman and others drilling No. 1 J. F. Boughman farm, SW Section 20, Parker Township, Clark County.

Total runs made from wells served by the Illinois Pipe Line Co. in western Kentucky during the month of March were 95,516.23 bbls.

Twelve Completions in Eastern Fields; Dry Hole Limits Lost Run Pool

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Apr. 16.—Twelve wells were completed in the lower eastern fields during the week. Again showing the trend of recent operations, eight of these were producers and only four gas wells. The new initial production was 183 bbls. a day, the majority being in Southeast Ohio. In addition there was one dry hole and it was the most important test in West Virginia completed during the week.

In Lost Run Pool, Clay district, Ritchie County, West Virginia, Ralph Roberts and others drilled No. 3 on the Sada McGinnis lease at the upper end of the Injun sand streak through that formation to a depth of 1,905 feet and it was dry. This location was northeast of No. 2 on the same farm and it definitely proved there is no directional turn in that direction as had been expected after No. 1 on this farm in due line of producers was also dry.

Lost Run Pool is not very active at present. One new rig is standing. Richards Farm Oil Co. is ready with a rig for No. 4 on the Corlie Ball farm, 300 feet southwest of No. 3. The same company has a rig standing for a test on the Z. Daugherty and Mary Toothman farm and Robert E. Elder has cleared a location on the J. W. Leonard farm.

SOUTHEAST OHIO

In Southeast Ohio, there were two fair wells in Coshocton County. In New Castle Township, Preston Oil Co. completed a test on the Vera Cochran farm in the Clinton sand which produced 55 bbls. the first day after shot. In the same township the same operators completed No. 3 on the William and Maude Frazee farm in the Clinton sand and it produced 90 bbls. the first day after shot.

In Medina County, E. R. Edson & Son Co. continued shallow drilling with No. 44 on the Ed G. Miller farm, Tract 15, Lot 12, Chatham Township. It produced 12 bbls. the first day after shot from the Berea grit at a depth of 475 feet.

In Morgan County, in NE Section 1, Windsor Township, Charles D. Mosher and others completed No. 4 on the Charles Yarnell farm in the Cow Run sand at 546 feet and it produced 2 bbls. the first day, natural, which was unimproved by shot.

In Washington County, O. V. and L. C. Burt completed a test on the Velma and Leland Burt farm in the southern portion of Lot 1,081, Palmer Township. It was drilled in the Wolf Creek sand at 260 feet and is rated as a quarter-barrel pumper, natural.

WEST VIRGINIA

In West Virginia, in addition to the continued reconditioning work, there were three producers. In Calhoun County on Three Mile Creek, in Sheridan district, South Penn Oil Co. completed No. 5 on the Henry Gregg farm in the Salt sand at a depth of 1,968 ftet. It is showing for a 3-bbl. producer.

In Kanawha County, Valley Gas Co. completed a test on the G. W. Harless farm on the waters of Indian Creek in Elk district. It was drilled in the Weir sand at 1,777 feet and has an estimated production of 10 bbls. a day from that formation. The sand was drilled through and will be shot. There was about 175,000 feet of gas a day.

In Roane County Reedy Oil & Gas Corp. completed a test on the D. E. Dallenback farm on Wiblin Fork in Curtis district, showing for 10 bbls. a day from the Salt sand.

Gas Wells

There were two gas wells completed in West Virginia, both fair wells. In Kanawha County, Holly H. Osborne completed No. 4 on the Goshorn and others lease on Rich Creek in Big Sandy district. It was drilled through the Squaw sand and is showing for 1,400,000 feet a day from that formation. It is about 2,500 feet southwest of No. 3, same lease.

In Gilmer County, C. A. Jarvis completed a test on the Susan A. Gainer farm on Trace Fork in DeKalb district in the Big Injun sand at 1,852 feet. It gauged at 276,000 feet a day, natural, which was increased to 1,000,000 feet a day after shot.

Drilling in West Virginia

In Cabell County, there are several new tests starting. In Guyandotte district, May Gas Co. is moving in on the G. I. Neal lease. In this district the Graham Gas Co. has started drilling on the Frank Marchetti lease and Guyan Valley Gas Co. is building a rig on the West Virginia Colored Children's Home. In this district, Fairfax Gas Co. abandoned a location on the United Fuel Gas Co.'s property. In McComas district the Madison Gas Co. is moving in materials for a second test on the Wade H. Holton farm. West Virginia Gas Corp. is building a rig on the George H. Pruett lease and has made a location on the John J. Porter farm. Empire State Gas Co. is down 2,700 feet on the L. and L. Adkins farm.

In Boone County, Pond Fork Oil & Gas Co. has made a location for No. 17 on the Cole and Crane lease in Washington district. In Sherman district, the Pure Oil Co. is drilling at 1,506 feet in No. 65 on the Federal Coal Co. lease and has part of the material on the ground for No. 66 and a road completed to a location for No. 67. In this district Godfrey L. Cabot is building a road to a location for No. 3 on the Central Trust Co. property.

In Clay County, Godfrey L. Cabot is down 2,371 feet in No. 9 on the Hill-Long lease in Pleasants district. In Lincoln County, West Virginia Gas Corp. abandoned a location on the J. D. Miller farm in Carroll district.

In Calhoun County there is additional new work. In Center district, Starcher and Richards have made a location on the James Wilson farm. In Washington district, Everett Starcher and others have made a location on the Curtis and Ella May farm. In this district, Kennedy and Phillips have part of the material on the ground on the J. C. Carpenter farm. This well was purchased from Hope Gas Co. In Sherman district, F. F. McIntosh has started drilling No. 5 on the O. S. Bennett farm. C. B. Lewis and others are drilling at 1,375 feet on the Virgil Hickman farm.

In Gilmer County, Godfrey L. Cabot is fishing the tubing from No. 2 on the J. P. Norman farm in Center district preparatory to drilling deeper. In this district Mountain Iron & Supply Co. has material on the ground to drill No. 2 on the A. H. Stump farm, an old abandoned well, to the Berea sand and has part of the material on the ground for No. 3 on the same lease.

In Wirt County, W. C. Patterson has moved to a location for No. 22 on the C. E. Vandeventer farm on Oil Rock Run in Clay district. Dinsmoor & Co. are drilling No. 3 on the J. H. Thompson farm from the Keener sand through the Big Injun sand.

(Continued on Page 86)

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Plan to Repressure Wells in Osage Field, Wyo.; New Location in Eunice Area, New Mexico

By TOLBERT R INGRAM
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Apr. 16.—Allowable outlet of the Hobbs Pool in New Mexico was increased on April 1 from 34,339 bbls. daily to 35,597 bbls. Continental Oil Co. released a new location in the Eunice area, bringing the total operations to five. Several wells in the Jal Pool are near completion. Repollo Oil Co.'s No. 2-X Parke, in the Maljamar area in Eddy County, was drilled 9 feet deeper and responded with a production of 125 bbls. daily. Two new operations in southern Eddy County and two in San Juan County were reported.

It is estimated that close to 5,000,000 acres of land for oil and gas exploration are held by companies and individuals in Colorado, of which 3,000,000 acres are in eastern Colorado, 754,000 acres are held under government permits and 464,000 acres are leases on state land. Important test in southeastern Colorado, near Lamar, has been reorganized and is resuming.

Preparations are being made to repressure wells in the Osage Field in Wyoming. One new operation was reported in that field and a wildcat is being started on Beaver Creek to the south. The Earl W. Reeder test in Carbon County is drawing near the objective and has oil standing within 500 feet of the top of the hole. Ohio Oil Co. completed a small gasser on the Walker Dome in Hot Springs County.

Two new locations and several near completions were reported in the Cut Bank Field in Montana. Montana Power Gas Co.'s No. 2 Seeba swabbed 347 bbls. the first 24 hours. Two new operations were reported in the Kevin-Sunburst Field and one well was abandoned in Petroleum County.

NEW MEXICO

Lea County

Umpire C. G. Staley's proration schedule for the Hobbs Pool for the first half of April gives the field's potential as of April 1 as 1,626,434 bbls. daily. This is an increase of 76,613 bbls. compared with March 16. Only one well was completed during the period, Noble Brothers' No. 1 Shell-State, which added 12,643 bbls. to the potential. The remainder of the increase is based on new gaugings, most on wells treated with acid. There were only a few wells treated during the last half of March. The potential has been increased, however, by 347,540 bbls. daily since January 1, with only one completion. There are now 185 units of 40 acres each in production and one of these is given a special allowable on account of water. The allowable outlet for the first half of April is 35,597 bbls. daily, which compares with 34,339 bbls. for the last half of March. The increase is due to Administrator Ickes' order increasing production in all fields on April 1. New Mexico's allocation under the new order is 45,800 bbls. daily. The state committee which allocates the production among the various pools is scheduled to meet this week. The increase in the Hobbs Pool was distributed pro rata among the purchasers. Pipe line runs from the pool in March aggregated 1,033,771 bbls., bringing the total since proration went into effect up to 42,983,914 bbls.

The only active drilling well in the Hobbs Pool is Empire Gas & Fuel Co.'s No. 4 Fowler, NE SE NE Section 31-18-38, which had a show of oil in the Bowers sand at 3,159-68 feet and is drilling at 3,772 feet in ilme.

In the Eunice area, a new location was released in Continental Oil Co.'s No. 17-A No. 3 A. E. Meyers, C SW NW Section 17-21-36, which has completed cellar and is moving in materials. It is an outside well half a mile west of Tide Water Oil Co.'s No. 1 Coleman. Atlantic Oil Producing Co.'s No. 2-B State, C NE SE Section 8-21-36, has completed rigging up and is waiting for completion of water wells. Tide Water Oil Co.'s No. 2 Coleman, C NW NE Section 17-21-36, is building derrick, and Gypsy Oil Co.'s No. 1 State, C SW SE Section 8-21-36, has cellar completed and is drilling water well. Continental Oil Co.'s No. 8-A No. 1 A. E. Meyers, C NE SW Section 8-21-36, is drilling at 2,722 feet in anhydrite.

In the Lea area, Texas Co.'s No. 1 Lea, S.W. cor. NW Section 14-20-34, is drilling at 2,835 feet, in salt, and its No. 2-B Lynch, C SE SW Section 27-20-34, has resumed drilling below 3,670 feet, where it stopped to test, and is making new hole at 3,688 feet in hard lime.

In the Jal area Continental Oil Co.'s No. 2 Sholes B-13, C NW NW Section 13-25-36, which has been shut down since last fall after completing cellar, spudded on April 3. Same company's No. 24-A No. 1 Ascarate, C NW NE Section 24-25-36, is waiting at 3,290 feet after cementing the 7-inch at 3,246 feet with 400 sacks. Stanolind Oil & Gas Co.'s No. 29-B Farnsworth, C SW SW Section 7-26-37, cemented 13⅜-inch at 508 feet with 210 sacks and is drilling at 586 feet in red sand. Empire Gas & Fuel Co.'s No. 1-B Lindley, C SE SW Section 13-25-36, is bottomed at 3,317 feet in lime and waiting after cementing the 7-inch at 3,280 feet. It tested through drill stem at 3,260-3,300 feet and showed for 7,000,000 feet of gas, but no oil, and tested again at 3,280-3,317 feet and showed for 3,500,000 feet of gas and 500 feet of mud and oil in the hole. Barnsdall Oil Corp.'s No. 1 Forrest, NE NW SW Section 24-25-36, cored to 3,320 feet, in gray lime, and found saturation at 3,305-07 feet. The 2½-inch tubing has been run and it is preparing to test. Texas Co.'s No. 2 Moberly, C NW SE Section 8-26-37, plugged back from 3,400 feet to 3,360 feet with 25 sacks to shut off water and is waiting. It averaged 105 bbls. per day, of which 18 per cent was water. Repollo Oil Co.'s No. 1 Stephens, SW cor. NE Section 13-25-36, has cellar completed and material on the ground.

Eddy County

Repollo Oil Co.'s No. 2-X Parke, NE NW NW Section 23-17-30, Maljamar area, an old well drilled deeper from 3,419 feet, was completed at 3,428 feet in shale and after treating with 1,000 gallons of acid, it flowed an average of 125 bbls. daily. This was only 9 bbls. less than its initial production when completed by Lockhart & Co. in 1930. Grayburg Oil Co.'s No. 5 Burch, C SW NE Section 19-17-30, is drilling at 2,826 feet in lime. Van Welch, Jr., and others' No. 2 State, SW NW NW Section 22-17-28, Artesia district, is drilling at 1,819 feet in gray lime.

Stovall & Marshall's No. 1 McIlvain, Section 5-25-27, Black River district, in southern Eddy County, is reported spudding. It is a little more than a mile south of its No. 1 Mock, which pumped 10 bbls. of fluid per day, of which 6 bbls. was water, in a two-day test at 2,369 feet.

Guess & McIntosh's No. 1 State, C NW NW Section 8-26-28, Red Bluff district, in the southeastern corner of Eddy County, is reported to have rig up for a cable tool test.

Ralph Spearow and others' No. 1 McClelland, SW NW NE Section 22-22-23, western Eddy County, total depth 4,865 feet, is reaming to run the 6⅝-inch to 4,100 feet. The water is believed coming in at 3,996 feet. This well has been trying for several weeks to exhaust the water and test an oil show.

Santa Fe County

Elmer Fisher's No. 1 Hill, Section 6-10n-7e, Barton district, is drilling at 1,560 feet after being delayed by a fishing job. C. C. Owen and others' No. 1 Cantwell, NW cor. Section 5-10-9e, near Stanley, set the 15½-inch at 220 feet and is drilling at 350 feet.

San Miguel County

Cabra Springs Oil & Gas Co.'s No. 1 C NE NE Section 22-12-22, Pino Mesa district, is drilling at 2,775 feet and carrying the 8¼-inch.

San Juan County

R. C. Oswell's No. 4, SW NW NW Section 34-30-11, Aztec district, is cleaning out at 1,720 feet, and his No. 5, NW cor. Section 34-30-11, is rigged and ready to spud. H. C. Stratton's No. 1, SW NE SE Section 25-30-12, is spudding. Fred Barrett's No. 1 Hart, SW NW SW Section 11-29-11, is running tubing at 1,745 feet, total depth, to test show of gas estimated at 500,000 feet.

COLORADO

A recent check of acreage under lease for oil and gas in eastern Colorado by companies and individuals indicates that very little, if any, of the land acquired two years ago has been turned back to the owners. At that time it was estimated that 3,000,000 acres were under lease in Colorado east of the mountain range and the total at present is believed to be fully up to and possibly larger than that figure.

On June 30, 1933, there were 428 permits on government land outstanding in the state. These covered 754,473 acres, an increase during the year of 180,760 acres. Comparatively little government land is to be found in eastern Colorado as most of it is patented ground. The principal holdings of public land are in northwestern, western and southwestern Colorado. The state has considerable acreage in eastern Colorado. State land under lease for oil and gas at last reports was 464,400 acres.

A deep test in southeastern Colorado which will attract considerable attention

Extensive Drilling Program Being Planned in Mar Jon Section, Turner Valley

By VICTOR LAURISTON
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Apr. 14.—Deliveries from the Turner Valley Field to the Calgary refineries in March totaled 94,723 bbls., compared with 89,400 bbls. in February and 90,267 bbls. in January. The March deliveries included 10,223 bbls. of clear naphtha, 69,307 bbls. of discolored naphtha and 6,771 bbls. of light crude, a total of 86,301 bbls., to Imperial Oil Refineries, Ltd. Large quantities of Turner Valley naphtha are marketed direct to the consumers at the well head or through small refineries in the field, and are not included in these figures. The total on the refinery reports does not include the most recent completion, Becker Syndicate's No. 2 Anaconda, one of the largest producers in the field, running between 300 and 400 bbls. a day.

Mar Jon Section

In Section 28-18-2w5, South Turner Valley, Mar Jon Oil Co.'s No. 2 Kindersley, LSD 10, is still testing the lower lime at 5,870 feet. It is thought the well will finish as a small commercial producer, around 50 bbls. a day.

Publix Oil & Gas Co.'s No. 1, LSD 8, is at 2,200 feet, and reported logging shallower than any other test in this section.

Director Royalties' No. 1, LSD 16, same section, is drilling rotary test below 2,724 feet, after drilling through the grit beds of the Blairmore at 2,330 feet. Pacalta Oils' No. 1, LSD 7, has backed up from 4,870 to 4,790 feet to sidetrack lost bit. Spooner Oils' No. 5 Anaconda, LSD 1, encountered a second gas flow around 4,670 feet which jammed the tools.

Richfield Royalties' No. 1, LSD 5, Section 28-18-2w5, is standing after cementing at 550 feet. Century Royalties' No. 1 rotary test, LSD 14, is around 3,000 feet. Carleton Royalties' No. 1, LSD 2, offsetting Highwood-Sarcee Oils' No. 1 in LSD 16, Section 21-18-2w5, is making preparations for a test. Turner Valley Royalties' No. 1, LSD 13, Section 28-18-2w5, is rigging up.

South Turner Valley

In the Mercury tract, Associated Royalties' No. 1 Spray, LSD 9, Section 5-19-2w5, is at 3,805 feet, having trouble with 13-inch casing. On the east side, North West Co.'s No. 1 Calgary & Edmonton-Longview, LSD 5, Section 27-18-2w5, is below 5,359 feet after drilling out of the Dalhousie sand into a shale formation. Directors of Nolan-Hungerford Royalties, Ltd., are arranging to resume work on the old Rand Petroleums' No. 1 in LSD 5, Section 34-18-2w5, taken over at 280 feet.

Far South Test

In the far south end, Highwood-Sarcee Oils' No. 1, LSD 16, Section 21-18-2w5, is deepening below 5,224 feet after shutting off crude encountered in the brown sand of the Dalhousie at 5,046 feet. Drill-

(Continued on Page 78)

is resuming. This well, which was drilled by Shastatex Oil & Gas Co. in its No. 1 Lotus Oil, NW NE NE Section 15-23-46, near Lamar, was shut down last fall at 2,655 feet. O. C. Chapin, president of the company, died, and the operation remained idle all the winter. Recently Trojan Oil & Gas Co., which held a joint interest in the test, took over the operation, straightened up the titles, acquired more land and is resuming. The rig is being repaired and put into condition and the plans are to pull 8¼-inch and underream 10-inch to bottom. At 2,655 feet the hole is believed to be just about ready to enter the Pennsylvanian formation. If necessary, it will be carried into the Ordovician. The operating company has a block of 6,000 acres of fee land and 6,000 acres under lease. It entered the red beds at 550 feet and topped the salt at 1,305 feet.

Continental Oil Co. and Gypsy Oil Co. have some blocks to the north and northeast of the Trojan test. Last week the Gypsy company placed on record 6,400 acres in Township 21, Range 45w, in Prowers County. This block extends over into the township to the north in Kiowa County.

Fremont County

John Milner and others' No. 1, SW SE SE Section 30-18-69, Florence district, is drilling at 1,700 feet in gray shale, and Waterville Oil Co.'s No. 1 State, SE cor. NW Section 16-18-69, Phantom Canon, passed out of the red beds at 2,508 feet and is drilling at 2,583 feet.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Section 31-36-17, McElmo district, is shut down at 1,750 feet waiting for 4¾-inch.

Grand County

Interstate Oil & Refining Co.'s No. 1 Hinman, NE SE NW Section 11-2n-81, Dirt Creek district, lowered 8¼-inch to 1,840 feet to shut off cavey ground and is drilling below that depth.

Moffat County

Stanolind Oil & Gas Co.'s No. 32 Parkinson, Lot 6, NW Section 23-4n-92, Iles Dome, is drilling at 2,840 feet. The Mountain Fuel Supply Co.'s No. 3-B Wilson, C SE SW Section 15-12-100, Hiawatha district, is spudding, and its No. 4-B Wilson, C NE NW Section 23-12-100, is building derrick.

Routt County

Mid-Colorado Petroleum Co.'s No. 1 Omholt, NE cor. SE Section 29-4n-87, Fish Creek, is drilling at 2,415 feet and carrying 10-inch at 2,250 feet.

Jackson County

Colorado Oil Refining Co.'s No. 1 North Park Coal Co., NW NW Section 18-9n-78, North McCallum is shut down at 750 feet.

Larimer County

C. Leonard Smith's No. 2 Union Pacific, SW cor. Section 31-12-69, Sand Creek, which has been shut down at 780 feet with some water in the hole since last fall, is being abandoned.

WYOMING

Weston County

One new operation in the Osage Field was reported in Chadron-Osage Oil Co.'s No. 25, SW NW SE Section 14-46-64, which is rigging up. West Osage Oil Co.'s No. 3, SE NE Section 15-46-64, is drilling at 300 feet, and C. L. Nichols' No. 4, SE cor. NW Section 8-46-63, is drilling at 220 feet. Albert Jones' No. 6 Bock, NW SW SE Section 21-46-64, is drilling at 150 feet.

The first systematic attempt to repressure wells in the Osage Field is being inaugurated by H. H. Schwartz, Jr., and associates, who are installing equipment and conditioning the wells for repressuring the wells of the Egaso Operating Co. in the S half NE and N half SE Section 17-46-63.

Nels Pearson, Wyoming administrator of the NRA, addressed a meeting of the Osage Oil Producers Association and guests, to the number of 90, following the monthly dinner of the association last Monday evening. Recovery in the Osage Field is following the administrator's chartered course faithfully and successfully.

Williams Refining Co.'s No. 18 State, SW SE SE Section 36-46-63, Pedro district, is drilling at 170 feet.

Gibson Oil Syndicate's No. 1 Mrs. C. H. Payton, Section 23-44-63, Beaver Creek district, 9 miles southwest of Newcastle, is moving in materials.

Niobrara County

Ed Shogren and others' No. 1 Olinger, NE NW Section 1-36-63, Old Woman Creek, is drilling at 1,120 feet and reports a show of oil and gas in the Thermopolis. Interstate Oil & Refining Co.'s No. 1 Morrell, NW NE SE Section 2-39-61, West Mule Creek, which had not found the sand in the base of the Minnelusa, which was productive in the one test drilled on East Mule Creek, when drilling stopped temporarily at 2,670 feet, has resumed and will go deeper.

Converse County

Wyoming Southern Oil Co. and S. H. Keoughan's No. 1 Brown, near C Section 27-32-69, Shawnee district, is still shut down at 666 feet, waiting to test show of gas at that depth. E. B. Jones and others' No. 1 Pittman, C NE NW Section 27-32-69, set the 20-inch at 150 feet and is drilling at 450 feet. Jones and others' No. 1 State, SW Section 16-32-69, has materials on the ground and derrick up.

Natrona County

Midway Oil Corp.'s No. 1 Boyer, SW NE NE Section 23-35-79, Midway structure, is standing at 5,190 feet while building derrick to clean out and complete. The hole filled up about 70 feet off bottom with cuttings. S. H. Keoughan estimates that the initial production from the Wall Creek on the pump will be not less than 500 bbls. Summitt Oil Co.'s No. 1 Trevett, NW cor. Section 21-33-80, North Platte, which has been shut down at 1,825 feet since last summer, is reported preparing to resume. The 6⅝-inch is on bottom. The Sundance is the next objective.

Carbon County

Earl W. Reeder, Inc.'s No. 1 Union Pacific, C SW SW Section 19-20-83, Overland Dome, is drilling at 4,429 feet and looking for the true Dakota sand at almost any time. The oil from the Frontier has been cased off and oil from lower formations is standing within 500 feet of the top of the hole. Ohio Oil Co.'s No. 1 Kanawha, SW NW NE Section 34-23-79, Allen Lake, which is being deepened from the Morrison at 1,754 feet to the Sunlance, is drilling at 2,010 feet. Producers & Refiners Corp.'s No. 4 Wertz, SW cor. SE Section 7-26-89, Wertz Dome, is shut down at 2,840 feet.

Sweetwater County

Mountain Fuel Supply Co.'s No. 2 Union Pacific, C SW SE Section 11-19-104, North Baxter Basin, is drilling at 420 feet.

Fremont County

Stanolind Oil & Gas Co. is drilling a series of core-drill holes on the Poison Creek Dome and on structure northwest of the Sand Draw gas field and a seismograph crew will follow to shoot the holes for subsurface reading. Should the geology of the area warrant it, a test for oil and gas will be drilled.

Hot Springs County

Ohio Oil Co.'s No. 1 Smith, SE cor. NE Section 9-46-99, Walker Dome, west of Grass Creek, which has been standing at 4,403 feet, total depth, since the summer of 1930, has been plugged back to 3,104 feet and completed as a 1,000,000-foot gas well in the second Frontier.

Park County

Frannie Oil Co.'s No. 2 Northern Pacific, SE SW SE Section 23-58-98, Frannie Dome, is drilling at 2,100 feet, and Stanolind Oil & Gas Co.'s No. 21 Rosenberg, NE SW NE Section 26-58-98,

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topped the red beds at 2,697 feet and is drilling at 2,731 feet.

Sheridan County

Sheridan Syndicate's No. 1 Allison, SW SE Section 15-55-85, Beaver Creek, set the 12½-inch at 480 feet and is drilling at 850 feet.

MONTANA

Glacier County

Dunstall and others' No. 1 Kennerly, E NE NW Section 22-34-6w, a mile west of the nearest producer in the Cut Bank Field, which last week gave indications of marking an important extension of the proven area when it encountered oil in the top of the sand at 2,970 feet, was deepened to 2,982 feet without showing any appreciable increase in the quantity of oil in the hole. A 6⅝-inch liner was run to 2,928 feet and cemented with 20 sacks. It will be several days before it will be known definitely what the well will make.

Montana Power Gas Co.'s No. 2 Seeba, C E half, E half, NW Section 2-34-6w, found the pay at 2,854-82 feet and was drilled 2 feet into the Ellis to 2,884 feet. Reports from the field say that it swabbed 347 bbls. first 24 hours. If confirmed, this well will be one of the best completions for some time.

Two new locations were reported. The Texas Co.'s No. 2 fee, 660 feet north and 415 feet west of SE cor. Lot 8, Section 15-35-6w, is moving in materials, and R. C. Tarrant's No. 1 Getty, C NE SE Section 2-34-6w, has spudded.

Alberta-Pacific Consolidated Oil Co.'s No. 3 Kiesel, NW cor. Section 11-34-6w, cemented 7-inch at 2,870 feet and at 2,879 feet is rigging up spudder to drill in and complete. A. B. Cobb's No. 2 Walburger, C NW SE Section 35-35-6w, has 500 feet of oil in the hole from the pay at 2,800-05 feet and is running 8¼-inch to 2,800 feet to set before drilling deeper. Dakota-Montana Oil Co.'s No. 1 Gilham, C Lot 4, Section 3-34-6w, is drilling at 2,020 feet. Montana Headlight Oil Co.'s No. 2 Williams, C NE NE Section 11-34-6w, is driling at 2,700 feet.

Montana Power Gas Co.'s No. 1 Neill, C NE Section 20-33-5w, is drilling at 1,100 feet, and Nadeau Brothers' No. 2 Van de Mar, E SW NW Section 35-35-6w, is drilling at 1,400 feet. Par Oil Co.'s No. 2 Haines, SE cor. SW Section 2-34-6w, is bottomed at 2,845 feet after drilling by tools and is ready to run the 6¼-inch perforated liner at that depth. Producers Development Syndicate's No. 1 Eniarson, SW NW NW Section 29-32-4w, South Cut Bank, shot the hole with 40 quarts at 2,050 feet, total depth, in an effort to loosen up bailer, without success, and is drilling it up.

Santa Rita Oil & Gas Co.'s No. 3 Cardwell, E SE NE Section 15-35-63, topped the Colorado at 555 feet and cemented the 12½-inch at 581 feet with 30 sacks. Its No. 1 Hardy, C Lot 5, Section 27-35-6w, topped the Colorado at 530 feet and cemented 12½-inch at 565 feet with 30 sacks. Same company's No. 2 Whetstone, C Lot 4, Section 22-35-6w, is drilling at 1,800 feet.

R. C. Tarrant's No. 2 Britton, SW NW SE Section 14-34-6w, which has been delayed several weeks in an effort to shut off water before drilling into the sand, cemented the 5⅞-inch at 2,902 feet and drilled to 2,920 feet. It has 450 feet of oil in the hole from sand at 2,905-15 feet. His No. 3 Britton, C NE SW Section 12-34-6w, is drilling at 950 feet.

Texas Co.'s No. 1 Antrim, C Lot 4, (SE SE) Section 27-35-6w, is drilling at 2,089 feet, and its No. 1 fee, Lot 7, Section 15-35-6w, is drilling at 1,911 feet. Same company's No. 2 Hinkle, 1,320 feet from north line and 440 feet from west line, Section 2-34-6w, is drilling at 120 feet, and its No. 1 Long, W NW SW Section 23-35-6w, is drilling at 615 feet. Texas Co.'s No. 2 Purdy, C NE SW Section 35-35-6w, cemented 7-inch at 2,844 feet and is drilling at 2,848 feet, and its No. 2 Yunck, W SW SW Section 14-35-6w, is drilling at 1,525 feet.

Toole County

Two new operations were reported in the Kevin-Sunburst Field. Big West Oil Co.'s No. 1 Goeddertz, SE cor. SW Section 35-35-3w, is drilling at 525 feet, and Robertson Co.'s No. 1 Roberts, SW NE NW Section 24-33-3w, is drilling at 300 feet.

C. Leonard Smith and others' No. 1 McDonough, NE cor. NW (cor.) Section 17-33-2e, East Shelby, is rigged and ready to spud.

Hill County

Northwest Utilities Co.'s No. 1 State, C NW NE Section 16-32-17, Box Elder district, is shut down for orders at 590 feet and may install heavier equipment.

Carbon County

East Bridger Oil & Gas Co.'s No. 1, SE SE Section 23-6s-23, East Bridger district, is drilling at 400 feet.

Fergus County

H. Clark Rowland and others' No. 1 Woodward, SE cor. SW Section 20-14-24, Button Butte district, is bottomed at 2,690 feet and running the 6¼-inch to 2,685 feet.

Big Horn County

Enterprise Oil Co. and others' No. 2 Lynde, SW cor. SE Section 21-6s-35, Lodge Grass Creek, is making another attempt to shut off water at 3,475 feet with the 4¾-inch before drilling into the Lakota.

Petroleum County

Winnett-Pacific Oil Co.'s No. 1, NE cor. SE Section 23-14-28, Flatwillow district, found the second Cat Creek dry and is plugging to abandon at 2,268 feet, total depth. Guy Smith and others' No. 1-A, SE SE Section 3-13-26, is drilling at 1,360 feet and had a show of oil at 1,358 feet in the second Cat Creek.

Liberty County

Harold Hayes and others' No. 1 Strode, NW SW Section 3-36-4e, Sweetgrass Hills, is drilling at 1,675 feet, with the Madison lime as the next objective. It had a show for 1,000,000 feet of gas at 1,550 feet.

Carbon County

Ohio Oil Co.'s No. 14 Maddox, C NW NW Section 10-7s-21, Dry Creek, has rig completed and is waiting for rotary tools from the Frannie Field.

SOUTH DAKOTA

The Lakota Development Co.'s No. 1 Knude, SE SE Section 20-10-4e, Shiloh district, Fall River County, has tools stuck 1,000 feet off bottom at 3,233 feet.

Canadian Fields

(Continued from Page 76)

ing will be continued to the porous horizon of the deep lime. Top of lime is within about 125 feet. Union Drilling Co.'s No. 1, LSD 8, same section, will make new hole from 2,758 feet. It has logged closely with Highwood-Sarcee's No. 1, a half mile north. Myers & Wright's No. 1, LSD 14, same section, offsetting Highwood-Sarcee's No. 1 to the west, is hauling derrick from Baymar Oils' No. 1 on the Ghost River structure.

Royalite to Buy Acreage

Shareholders of Commonwealth Petroleum, Ltd., will meet at Calgary on April 16 to consider a proposition from Royalite Oil Co. for the sale of the Commonwealth's 40-acre lease and producing well in Section 9-19-2w5 in South Turner Valley. Commonwealth's No. 1, drilled some years ago on the east side, was for a time a large producer in the deep lime, and in 1933 delivered a total of 10,437 bbls. It is now making about 20 bbls. a day. The company will receive 6,000 shares of Royalite stock. Commonwealth Petroleums Ltd., some years ago drilled an unsuccessful deep test on the Milk River structure in southern Alberta, and is carrying on development in the Cut Bank Field, Montana, where it has one producing well and a part interest in the Fulton-Commonwealth producer.

Richfield Petroleums Meeting

Shareholders of Richfield Petroleums, Ltd., held their annual meeting recently at Calgary when the following officers were elected: President, W. S. Henderson; directors, Alfred Cooper, William Howe, J. L. Sadleir, Calgary; Byron Harmon, Banff.

Calgary & Edmonton

Official figures issued by Calgary & Edmonton Corp., Ltd., of Winnipeg show that production from the company's Turner Valley acreage in February totaled 27,620 bbls., comparing with 15,965 bbls. same month last year. Arrangements are being negotiated by other companies for development of Calgary & Edmonton acreage in the Pekisko and Cardston areas of southern Alberta.

Drilling in the Foothills

In the Alberta foothills, Pekisko Hills Co.'s No. 1, LSD 6, Section 6-17-2w5, on the Pekisko Hills structure south of Turner Valley, is below 170 feet.

On the Moose Mountain structure west of Calgary, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, is in or close to the Dalhousie at 4,200 feet.

On the Watson structure near Lundbreck, F. E. Sandercock and associates of Calgary are preparing to resume work on Raven Oils' No. 1, Section 20-9-2w5. New hole will be made from 80 feet.

Border Fields

On the Twin River structure south of Lethbridge, Nordon-Roney's No. 2 Twin River, LSD 11, Section 2-2-20w4, is reported to have run acid at 3,930 feet.

In the Skiff Field, Southern Alberta, Devenish Petroleums' No. 5, LSD 4, Section 27-5-14w4, offsetting Nos. 1 and 3 producers in the same section, will probably spud this month.

Simpson Operations

Shareholders of the Simpson Oil Co., who held their annual meeting recently at Simpson, Saskatchewan, are planning to drill a second test for oil in the Simpson area.

In drilling the first test, three oil horizons were encountered. At 2,040 feet a good show was met, but a geologist decided it was off structure. More oil was struck at 2,671 feet but it was drowned out by water. Structure tests drilled later show a rise in structure to the east of 380 feet in 3 miles and it is planned to drill a test in this direction. It is expected a test costing $20,000 to $25,000 would reach the potential oil horizon around 1,800 feet. The company has its own drilling outfit. It has filed on some 26,000 acres in this new area.

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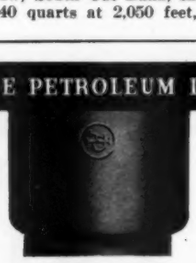

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TECHNICAL QUESTIONS ANSWERED

By Charles K. Francis, Ph. D., Technical Editor

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible.

Inquiries must be signed but only the given initials will be printed. The source of the question is considered to be confidential

Questions requiring a discussion of patents, the use of intricate formulas, extended computations, or cost estimates cannot be considered.

When the matter is of general interest the reply will be published within a reasonable time.

Essential Property of Gasoline Is Volatility

What is the more important when judging the merits of gasoline for automobile use, the distillation range or the heating value?—W. G.

Gasoline is a liquid composed of a group of hydrocarbons that are obtained from petroleum, direct or indirect, by the process of refining. The automobile engine has been designed to burn this substance. Hydrocarbons mean substances composed of carbon and hydrogen in chemical combination and not mere mechanical mixtures. Carbon is an element known to the chemist in three forms, graphite, carbon black (also lamp black and charcoal), and the diamond; hydrogen is a gas. Certainly no mixture of diamonds and hydrogen could be used for motor fuel in the present day car, and the same is true of the other forms of carbon, although it would be possible to put quantities of carbon and hydrogen into a vessel in proper proportions to equal the heating value of gasoline.

The automobile engine has been developed from the gas engine, the group of petroleum hydrocarbons included in gasoline having a range of boiling points, together with high heating value, to furnish a liquid that is easily converted into a vapor which explodes, to furnish the power, when mixed with the proper volume of air. Another way of saying this is that the automobile engine is a gasoline engine, it has been built around gasoline. There is no other fuel known which will behave in exactuly the same manner and it is hardly to be expected that any substance will ever be produced and so widely distributed at so low a cost for motor fuel purposes as gasoline.

There are numerous substances that are quite volatile, others that have high heating values, but the combination of the two is something that is unknown. The volatility of gasoline is determined by the distillation test. The heating value is determined by means of a calorimeter and is usually expressed in B.t.u. The heating values of the different gasolines now marketed do not vary much, a 60 gravity gasoline will test 20,650 B.t.u., as compared with a 58 gravity product testing 20,570 B.t.u. It is clear that heating value by itself can be of little value as a means for the grading of different gasolines that are to be used as motor fuel.

Royalties Are Paid for Operating Patented Cracking Processes

Could you give me some idea as to what is considered to be the proper payment for the use of a cracking process?—E. R. C.

There are several schemes under which a patented process for the cracking of petroleum stocks may be used. The same principle applies here as in any business contract; that is, the interested parties may make any arrangement which is mutually satisfactory. Licenses are usually granted under one of three plans. (1) A rate based upon each barrel entering the system, usually called the charging stock. (2) A per barrel payment according to the quantity of gasoline made. (3) A one-sum payment, or paid-up royalty, for the life of the unit. Another method should be mentioned, probably little used in recent years; that is, a royalty based on a percentage of the profits resulting from the operation of the unit. This was the plan followed under the Burton process agreements, the royalty being first set at 25 per cent of the net profits. The rate was afterwards changed to 16 cents per barrel of oil charged.

The rate per barrel of charging stock is reported at this time to range between 10 and 15 cents.

The rate based on the quantity of gasoline made is said to be fixed at 32 to 33 cents a barrel.

The one-sum payment may vary over a wide range because many factors have to be considered. The large variable is the number of barrels cracked per year; the larger the volume, the lower the rate. In a general way it appears that for the smallest units, under 1,000,000 bbls. per year, the royalty is $1 per barrel, and for the largest installation, above 3,500,000 bbls. per year, the paid-up royalty would be arranged at the rate of approximately 40 cents a year-barrel. The sum is arranged, in most instances, so that it covers a three to five years' operation under either of the other plans.

Pyrolysis or Cracking Natural Gas for New Substances

What is meant by the pyrolysis of natural gas and what is the object of the process?—H. N. B.

Pyrolysis is a process for causing chemical decomposition by means of heat. Natural gas is composed of hydrogen and carbon and when the gas is subjected to a high temperature, above 1,800° F., the molecular structure is broken up, or cracked, producing particles of carbon and the gas hydrogen. If the temperature is mild, that is somewhat under the cracking temperature, there is a tendency for the atoms of carbon and hydrogen to recombine with the result that new compounds, other than those constituting the original gas, are formed.

Besides hydrogen, which has numerous uses, acetylene, ethylenes and butadiene, may be mentioned as base products formed by the pyrolysis of natural gas. Acetylene is extensively used as a fuel for heating and cutting torches, and for making other chemical substances. Acetaldehyde may be made from it; this is extensively used in the preparation of chemicals used in medicine and as the reducing agent for precipitating silver in the manufacture of mirrors. Ethylene is used for making antifreeze solutions and for the artificial ripening of fruits. It is also the base material used in the preparation of alcohol, ether and other organic compounds. Butadine is closely related to rubber and suggests a possible starting point for the synthetical preparation of rubber.

Small quantities of benzene, toluene and xylene are formed when natural gas is cracked. These are base materials for making numerous substances, including explosives, perfumes, medicines, dyes and other valuable chemicals.

The direct product of the burning of natural gas, under controlled conditions, is carbon black. This substance is essentially pure carbon, used for making printing ink, as a pigment in paints and especially in the rubber industry for making tires and other articles.

See this page in the issue of February 15, 1934, under "Natural Gas as Possible Source of Synthetic Gasoline."

Activated Charcoal Made for Gasoline and Solvent Recovery

Is it a practical operation to make activated charcoal from coal? If this is done, could you give me any information covering its power for extracting gasoline from gas?—S. F. A.

Activated charcoal is made, to some extent, from bituminous coal, the most satisfactory coals for the purpose being those having a low ash content. The pulverized coal is briquetted under very high pressure, then the briquettes are subjected to intermittent heating in retorts, the temperature being about 1,000° F. The residue is a hard mass with very small cells that is free from voltaile matter, burning without smoke. This charcoal is activated, while hot and in the retorts, by means of steam.

This product has a commercial adsorbing value of 35 per cent by volume. This means that 100 c.c. of the carbon will adsorb 35 c.c. of carbon tetrachloride under test conditions. The test is made by passing air containing 1 part of carbon tetrachloride per 1,000 through the charcoal at the rate of 500 c.c./min. until a copper strip imparts a green color to the test flame. See this page, issue of February 1, 1934.

The gas containing the gasoline vapors is passed through the activated carbon, contained in a tower, two or more adsorbing units being used so that one is continually in use while the saturated carbon in another tower is being heated with steam. The steaming causes the gasoline to pass off through a condensing system and also revivifies the carbon to be used again.

This form of carbon is now used for the recovery of solvents in the industries, such as in the extraction of oils and gums from plant and animal substances and in the recovery of rubber.

An important development is the use of activated carbon for the extraction of benzol from coal gas. A recent report states that a 20 per cent yield, on the weight of the carbon, has been obtained on fresh carbon. The efficiency of the process is about 95 per cent, requiring 3.32 pounds of steam per pound of benzol and an over all consumption of the charcoal equivalent to 6.8 pounds per 1,000 pounds of benzol recovered.

Copper and Other Mineral Salts for Distillate Treating

I have read where copper sulphate, blue vitrol, was used in refining crude that contained large amounts of sulphur. Is this put in the crude or how is it used?—O. C. C.

There are numerous adsorbents that are used for treating petroleum liquids and vapors for the removal of bad odors, sulphur reduction and decolorizing. The solids, such as copper sulphate, are adapted to vapor phase treating. The salt may be dissolved in water and the resulting solution used to saturate some suitable material that will serve as good contact surface. The substances used include clay, fuller's earth, coke, tile and other porous materials. After saturation with the copper sulphate solution, the material is dried and then packed in a tower.

The hot vapors from the still are passed through the mass of copperized particles, the sulphur in the vapors tending to combine with the copper, producing copper sulphide. The solid material is revivified by heating and then recharged to the treating tower.

In some instances solid adsorbents are used, in the pulverized condition, for the direct treatment of petroleum distillates for desulphurizing and decolorizing. This practice is not generally followed, being confined to the treatment of special products or where an unusual problem is to be solved.

Copper and other substances are used with filtering clays, sometimes several chemicals are added. The following is quoted from Chemical Refining of Petroleum, by Kalichevsky-Stagner, page 177:

"The chemicals employed increase the decolorizing and in some conditions the desulphurizing efficiency of the clay. For improving the decolorizing efficiency the added chemicals are usually acidic in nature, such as aluminum sulphate, zinc chloride, and aluminum chloride.

"The added chemicals purporting to enhance the desulphurizing and deodorizing power of the clay are the salts of copper, iron, lead, manganese, zinc or other metals which have an affinity for some of the sulphur compounds, magnesium phypochlorite or double salts of magnesium and aluminum hypochlorites, calcium chloride with magnesium hydroxide and chlorine, cupric sulphate and calcium hypochlorite, aluminum sulphate and calcium hypochlorite, sodium sulphate, or other soluble sulphate of an alkali-forming metal, and calcium hypochlorite, and finely divided metals, such as copper and nickel. However, none of these methods proposed for the reduction of the sulphur content has met with any appreciable success."

NATURAL GAS DEVELOPMENTS

Illinois Coal Operators Continue Fight on Gas

CHICAGO, Apr. 16.—The claim that the method by which Peoples Gas Light & Coke Co. sells gas on an interruptible basis to industrial consumers is a "discrimination" is made in a brief filed with the Illinois Commerce Commission by Attorney Walter E. Beebe for the Illinois Coal Operators Association.

Filing of the brief is the latest move by the state's coal producing and merchandising interests in proceedings begun before the commerce body last December following failure of roundtable negotiations to effect a truce between the coal men and the gas company.

The complaint charged price discrimination, selling of gas below cost and certain unlawful acts in connection with contracts between the Chicago District Pipe Line Co. and Natural Gas Pipe Line Co. of America. The gas company countered with a brief denying all charges.

The brief filed by the coal men charges the company gives what is in effect a noninterruptible or demand service at a price far below the figure at which it sells ordinary demand service; that it discriminates against users of gas who are not provided with a standby plant; that the gas company, under its charter, may not sell oil or liquid fuel for heating purposes and that by reason of the arrangement with the Natural Gas Co., Peoples Gas is selling gas far below the cost at which it can be produced and delivered to a customer.

The charges are based on specific cases mentioned in the complaint filed by the coal men with the commission December 10, 1933. It was charged that Swift & Co. among other large industrial concerns had been the beneficiary of the low rates and that a standby plant had been built for it by the gas company at a cost of $159,000. The arrangement with Swift embraced the supplying of substitute fuels if the gas supply was interrupted.

It is claimed in the brief just filed that the contracts with Swift & Co., and with Crane & Co. are in violation of the published schedule of rates for gas filed with the commerce commission.

It is charged that any gas now sold on a flat rate, no matter how large the contract, is a discrimination against the users of gas who are charged a double rate. The guarantee by the gas company and affiliated companies of the contract between the companies transporting natural gas into Chicago, it is contended, is illegal and was made directly illegal by statute subsequent to July last year.

There has been no benefit to either the domestic customer or the public generally from introduction of natural gas into the field, the brief contends, nor, it says, has the gas company appeared to benefit.

"Apparently the only effect so far realized," the brief says, "has been the threatened destruction of the coal industry. In our judgment it is the duty of the commission to go into the entire situation with a view to remedying these most serious conditions."

CARDSTON GAS PROJECT

CARDSTON, Alberta, Apr. 14.—Cardston Gas & Development Co. has applied to the town council for a franchise to supply natural gas to Cardston. The company is to start drilling within 60 days on a potential natural gas structure near Cardston. Negotiations with the town are being carried on by Mr. Thorne of Moose Jaw, and Saskatchewan capital is largely interested. A number of tests drilled for oil in this area between 1915 and 1919 encountered gas shows, Boston Alberta Oil Co.'s No. 1, LSD 16, Section 5-1-25w, encountering six gas shows between 690 and 1,810 feet.

Natural Gas Revenues Declined in January

The manufactured and natural gas industry had revenues of $69,933,700 in January, 1934, compared with $70,502,500 in the corresponding month of 1933, a decline of less than 1 per cent, according to the American Gas Association. Manufactured gas revenues totaled $34,527,300 for the month, or approximately the same as in the like month of 1933, while the natural product brought in $35,406,400, 1.7 per cent below the January, 1933, level.

Sales of manufactured gas amounted to 33,143,100,000 feet, an increase of 5.7 per cent, and sales of natural gas for the month were 93,221,800,000 feet, a gain of 6.6 per cent. Sales for domestic purposes remained substantially below the corresponding 1933 month. Industrial-commercial sales, however, showed important gains, manufactured companies selling, roughly, 13 per cent more for those uses and natural gas utilities more than 25 per cent greater volume to that class of business. Natural gas companies increased their sales for house heating purposes nearly 48 per cent.

As of January 31, 1934, customers for the gas industry aggregated 15,342,500, representing a small increase during the 12-month interval.

Reduction in Gas Rate Proposed in California

SAN FRANCISCO, Calif., Apr. 14.—an offer of an immediate reduction of $1,050,000 annually in natural gas rates has been made by the Pacific Gas & Electric Co. in exchange for the State Railroad Commission's dismissal of its present order cutting rates $2,100,000 and elimination of that order's retroactive clause on which rebates now total $1,500,000.

The commission took the offer under consideration. Indications were it probably would be accepted.

The company, as part of its offer, and to offset the elimination of the retroactive clause, would stipulate it would claim neither cut-over expenses nor amortization of extraordinary leakage expenses, which total $1,600,000.

SALINA GAS OPERATIONS

CHATHAM, Ontario, Apr. 14.—Shareholders of the Salina Gas Co. held their annual meeting at Chatham last week when the following officers were elected: President, B. H. Harrison; vice president, Dr. A. A. Hicks; managing director, Leo Wildgren; director, C. B. Price; sercetary, Reg. Appleyard; treasurer, Dr. W. A. Elgie. The company has been operating for a year or more in the Tilbury Field, Kent County, Ontario. Out of five wells drilled, four proved good gassers. Some $22,000 has been spent in drilling operations. No new drilling is contemplated in the immediate future.

REDUCE LAREDO RATE

AUSTIN, Tex., Apr. 16.—A jury in Travis County District Court sustained the Railroad Commission order reducing the Laredo domestic gas rate from 75 to 55 cents.

Lone Star Co. Witness Gives Gas Men's View

AMARILLO, Tex., Apr. 14.—J. H. Dunn, production engineer for the Lone Star Gas Co., told the Senate Investigating Committee that one gas stripping plant would permit more gas to escape into the air during a year's time than was produced from the western Wheeler County, or East Panhandle Field during 1933.

The Smith Brothers plant in eastern Gray County, Mr. Dunn said, if operated at a capacity would permit 36,000,000,000 feet of gas to pop off into the air in one year, compared with a total production of 28,000,000,000 feet for all purposes last year. He said this tremendous volume of gas would be taken from no more than 10 wells while production last year was from 221 wells.

Mr. Dunn testified that the stripping plants were draining the field by "slotting" wells, or making occasional connections, just as the pipe lines formerly were accused of doing. He said the stripping plants made no pretense at taking ratably.

"If six more plants the size of the Smith Brothers were constructed, the Wheeler County Field would be depleted within five or six years," Mr. Dunn said, "and not more than 6 per cent of the gas reserve would be utilized for light and fuel."

It is from the Wheeler County Field that the Lone Star company serves 250 Texas towns, or more than half the people of Texas.

"If the Lone Star operated its 146 wells on the same basis as the 8 wells now connected with the Smith Brothers' plant are being operated," Mr. Dunn said, "we would waste enough gas each day to supply more than 10,000 average domestic consumers for a year."

California Commission Considering Rate Base

LOS ANGELES, Calif., Apr. 14.—At the hearing on Pacific Gas & Electric natural gas rate case before the California Railroad Commission in San Francisco, Arthur George, counsel for the commission, recommended that the board abandon prudent investment theory it has followed in rate making and accept the fair value method as laid down in Federal courts. He said it was inevitable that as long as the commission followed the past policy, courts would continue to grant interlocutory injunctions against rate orders.

Warren Olney, Jr., counsel for P. G. & E., said the company "will reduce the rate immediately in settlement of the entire litigation by 50 per cent of the difference between present rates and the rate ordered by the railroad commission. Such reduction would not be retroactive, but as offsetting retroactive features cut-over and amortization expense would no longer be claimed by the company as a major consideration in rate case determination."

GAS ASSOCIATION ELECTS

Elections of officers and directors for the Southern Gas Association resulted as follows: W. W. Winter, Atlanta, Ga., president; C. B. Gamble, Birmingham, Ala., first vice president; H. E. Meade, New Orleans, second vice president; S. L. Drum, New Orleans, secretary-treasurer. Directors: L. H. Hungate, Jr., Memphis, Tenn; Edgar Morris, Washington, D. C.; C. L. Ridley, Nashville, Tenn.; W. S. Russell, Atlanta, Ga.; E. S. Dickey, Baltimore, Md.; R. F. Fledderman, Hamilton, Ohio; D. H. Levan, Jacksonville, Fla.; J. V. Strange, Houston, Tex.

Appraising Results of Natural Gas in Chicago

The three gas companies serving the Chicago area—Peoples Gas Light & Coke Co., Public Service of Northern Illinois, and Western United Gas & Electric Co.—embarked last year upon a revolutionary change in the habits of Chicagoans. House heating by gas was pushed through one of the largest advertising campaigns of that character ever undertaken.

Today, 20,000 red pins in a map—each representing an installation—not only attest to the success of the drive but by their distribution reveal the surprising fact that the market is largely among people of limited income. Districts in which five-room bungalows dominate have been more fertile than the Gold Coast and Lake Shore residential sections. One explanation offered is that in the small homes the labor of furnace tending falls largely upon the wife.

A big factor in this mass selling effort was a reduction in house heating rates July 1. This brought the cost of gas to a figure comparable with oil or anthracite coal. To make it even easier for the householder to install gas heat at moderate cost, a rental plan covering the use of conversion burners made it unnecessary for the customer to make any investment in changing from another fuel to gas. In addition, the gas companies offer to remove the gas conversion burners and restore the householder's heating equipment to its former condition entirely without charge at his demand.

The groundwork for the success of this campaign was laid when the Texas-Chicago natural gas pipe line was completed on October 31, 1931. Economies of pipe line operation made it possible for the Chicago gas utilities to put into effect promotional rates which would not have been possible if manufactured gas alone had been available.

The significance of this campaign to the Chicago utility companies goes deeper than that, however, says Business Week. The stability of a utility's income depends largely upon the scope of its service to the community. They believe that, by actively pushing the use of gas for new purposes, they are not only increasing present sales, but laying the groundwork for even greater stability of income in the future. The campaign is continuing this year, headed by a tri-company committee.

PEOPLES GAS PROMOTIONS

John B. Tonkin, president of the Peoples and Columbia Natural Gas companies, Pittsburgh, Pa., has announced the following promotions: E. W. Williamson, manager; Christy Payne, Jr., assistant to manager; Fred A. Benkert, superintendent, and L. E. Ostrye, superintendent of city plants.

W. D. Griffith, R. McKinley, Charles D. Altman, Llyd C. King, C. R. Spencer and Gerge Fonner were named district superintendents.

TO SERVE ARIZONA TOWNS

Natural Gas Service Co., affiliate of Western Gas Co., which recently completed the new Tucson-Phoenix extension, has been granted a certificate of convenience and necessity to sell gas to cities and towns along the new line outside of the areas supplied by public utility companies in Cochise, Pima, Pinal and Maricopa Counties, Arizona. C. C. Cragin is vice president and general manager of the Natural Gas Service Co.

FIELD PROBLEMS FROM READERS

Edited by Thomas F. Smiley

This department is conducted in order that men connected with the drilling, producing and transporting branches of the petroleum industry may obtain aid in solving problems that confront them in their work. Readers are invited to send questions freely. These questions will be placed in the hands of persons capable of answering them authoritatively, and the answers, based on the best available information, will be published.

Each question should give as much detail as possible, especially if it involves depth of sands, types of sands and operations on adjoining or nearby properties. The source of questions will be considered confidential, and only the initials of the sender will be published. Questions involving patented processes, intricate formulas or estimates of cost cannot be answered. If an immediate answer is important, one will be given by mail when the writer requests it.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or improved old ones.

Congealed Paraffin May Be Cause of Trouble Encountered Here

Will you please give me the information necessary for the correct reading of the results of a centrifugal test for bituminous sediment in crude oil? Here are a few of the perplexing problems: (1) Does the bituminous sediment extend solidly from the tip of the tube to the top line of the sediment shown adhering to the inside of the glass even if only one-third or one-fourth of the circumference is covered? (2) Does the sediment, which sometimes forms only narrow rings around the entire circumference of the tube, especially near the curvature of the tip, extend solidly to the extreme point? And if so, why is not the sediment below the ring visible? (3) At times the sediment adheres in spots only. Is the sediment solid from the highest spot to the extreme end of the tip? If it is not, how is one to judge the density of the sediment in order to obtain the correct quantity?—F. S. S.

Your whole trouble probably is due to congealed paraffin. While you do not so state, it is assumed that you have had the trouble you describe during the winter months. If this is true, it is suggested that you heat the oil sufficiently to make the paraffin fluid, but never to exceed 120° F.

The procedure to be followed in the field is to add not to exceed 50 per cent gasoline to the oil if this black material appears on the sides of the tube. This will tend to dissolve the paraffin. Then hold the tube over the radiator opening of an automobile or some other source of steam heat until it is warm enough to have all products in a fluid form.

Then put the tube into the centrifugal machine and grind out the sample for a sufficiently long time to be certain that all of the heavy material is in the tip of the tube. Allow the machine to come to rest of its own accord—do not stop it by hand—and it is believed you will find the b.s. and sediment separated from the oil.

It is essential that the centrifugal come to rest without the braking effect of manual power applied to stop it because if the forward motion is retarded there is a tendency to create a high and low side in the sediment in the tip of the machine. This is due to the effect of centrifugal force being applied unevenly.

It is possible that with all precautions one side of the sediment level line may be higher above the tip of the tube than the other. In this event, if it is certain that all of the material in the tube is in fluid state, it is best to take the average line between high and low side on the tip and use that in reporting b.s. and sediment content in the sample.

If black streaks or specks appear in the tip of the tube they should be checked to determine whether they are paraffin that has congealed. If paraffin, heating may again reduce it to a fluid state. If something other than paraffin, addition of not more than 50 per cent of the total volume of the sample of some solvent, gasoline because it is handy, and taking this added fluid into account in reporting results. It is light and should be mixed with the lighter fluid in the tube after grinding.

Grind the sample a sufficiently long enough time to be certain that all sediment and b.s. have separated from the oil.

Allow the centrifugal machine to come to rest without applying any external force.

Check the top of the sediment lime in the tip of the tube. If this line is not parallel with the graduations, average the high and low points.

Good Bond Between the Courses Needed in Concrete Floors

Can anything be done to avoid the tendency of the finish of a concrete floor to crack and curl up and go to pieces soon after it is subjected to heavy traffic? I think the trouble with the floor I have in mind lies in an imperfect bond between the base and the topping, though I used much care throughout the whole job. I will be glad to receive any suggestions, for I have some more work of this kind ahead.—D. O. E.

The following suggestions for your guidance are provided by L. H. Corning, structural engineer for the Portland Cement Association:

"A good bond between the base course and the wearing surface is essential in making a concrete floor. Unless a bond is developed between the two courses the finish may curl and will soon be broken down by traffic as it will lack the necessary support. A good bond is readily accomplished by attention to the preparation of the base to receive the topping. It is recommended that the wearing course for heavy-duty floors be placed after the base has hardened, as a more accurate control of quality is possible. To insure a bond roughen the base before it has hardened to expose the aggregates slightly. All laitance, dirt or loose aggregate should be removed by means of a stiff wire broom. No attempt should be made to give the base a smooth surface.

"Just before placing the wearing course on the roughened base, the latter should be scrubbed thoroughly to remove all dust. After this has been done wet it uniformly and keep it wet until the topping is placed, but do not leave pools of water. The purpose of wetting the slab is to keep it from robbing the topping of the water necessary to hydrate the cement in the wearing course. While the base is wet, broom in a neat cement grout, and place the topping before the grout hardens. The cement grout should be applied only a few feet in advance of the topping to be sure that it does not harden before the wearing course is applied.

"The manipulation of the wearing course has much to do with its durability. The one-time common practice of striking off the concrete and then troweling it while still plastic, until there was a slight layer of fine material at the surface, was largely responsible for crazing, dusting and poor wear resistance. The proper procedure is to strike off the topping to grade with a straightedge and then roll or tamp it to compact thoroughly the entire depth of the wearing course. Maximum density of the floor finish, and that is essential for a durable floor, is obtained only when the concrete is well compacted. Following the rolling or tamping the finish should be floated with a wood or cork float or with a power floating machine to fill up the hollows and iron out any humps left by the previous operations."

Why Was It Called That?

NRA

There is no need of explaining that NRA stands for National Recovery Administration, which has been a subject of heated discussion in the oil industry, but time must be taken to tell how a group of United States school teachers visiting the Fort Erie race track across the Niagara River from Buffalo, N. Y., left Harry Bush, special guard at the track, wondering. "Isn't it marvelous that even up here in Canada they have adopted the NRA!" one of the schoolma'ams exclaimed. "And it will help your country, too, just as it has ours," she told Mr. Bush. "I hope President Roosevelt hears about this." Later on the mystery was solved by another track employe who pointed to the NRA on the guard's cap, standing for Niagara Racing Association.

Determining Straightness of the Hole by "Bottling" Method

It used to be a common practice, it appears, to determine the straightness of a well hole by what was called bottling. Will you tell me, please, what was meant by bottling? Is the method used any more and is it accurate?—N. A. E.

Hydrofluoric acid will etch glass. Upon this well known fact is based the practice of pouring some of this acid into a clear glass 4-ounce sample bottle and enclosing the bottle in a case that is lowered into the hole. When the desired point to be checked is reached the device is held in position for a short time and then withdrawn. The bottle is examined to determine the relation of the acid-etched line on the inside of its surface to the true level and when this is determined the angle of the hole at the point of survey is determined.

This merely indicates whether the hole is out of plumb, but does not tell the direction of deviation from vertical and it is not nicely accurate as to the degree of declination.

Care must be exercised too in handling this acid as it will inflict severe wounds if it comes in contact with the hands, face or other parts of the body.

There are several devices on the market for applying this principle to checking drilled holes and instruments for determining the results in the laboratory or on the derrick floor.

This method is all right for general results but if there are any serious problems at stake it is recommended that the services of a well surveying company be engaged because such companies use instruments that are accurate and are operated by experienced men.

Tomball, He Says, Goes to Prove Claims Made for Geophysics

I have read with interest the question and your comments pertaining to the big field of Tomball in The Oil and Gas Journal of March 22. I would like to say in even stronger terms than you do that Tomball is by no means a condemnation of geophysics. On the other hand, taken by itself, it could be regarded as a verification of the science.

Developments at Tomball have provided fresh evidence of the success and possibilities in the use of instruments in locating structures. The fact that the field has been somewhat of a flop from a production standpoint does not mean that geophysics failed in this instance. The trouble with Tomball is the absence of sands. Determination of the presence of sand conditions, of course, is beyond the realm of geophysics. Tomball is a decided structure and its outlines are bearing out closely the findings of geophysics. The structure has been proved to exist over a wide area and if the sands were present which exist in the Conroe Field, there would be a field of enormous potentialities.

As you know, the original geophysics at Tomball was done some five years ago, and how well this original work has been proved out in the present development is uncanny. As you state, sometimes instruments may be able to determine the presence of sands around the structure but for the time being we will have to be content with the finding of the structure and then drilling to determine the presence of the sands which exist or do not exist there.—N. W.

MARKET RECORD OF OIL SECURITIES

Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforzheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1934 High	1934 Low	Week ended April 14 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
53¾	41½	6,200	53¼	50¼	50¼	Amerada Corp.	774,875	N.P.	50cQ	1-31-34	47⅝	18½	22¾	12	23	11¼
35¼	28¼	18,900	30¾	29½	29½	Atlantic Refining	2,673,834	$25	25cQ	3-15-34	32½	12⅜	21⅞	8⅝	23⅝	8⅝
10	7¾	37,400	9¾	9⅛	9¼	Barnsdall Corp.	2,186,385	$5	....	5-11-31	11	3	7	3⅜	14½	4
19¼	11⅛	29,100	15⅞	15	15⅝	Columbia Gas & Elec.	11,610,036	N.P.	12½cQ†	2-15-34	28⅛	9	21	4¼	45⅝	11⅝
14¼	9¾	48,500	12⅞	12⅛	12¼	Consolidated Oil Corp.	14,218,835	N.P.	28c	4- 7-34	15¾	5	9	4	15⅞	4¼
21⅜	16½	62,800	21⅜	20	21	Continental Oil of Delaware	4,738,593	$5	25c	4-30-34	19⅝	4⅞	9⅜	3⅝	12	5
21¾	15⅛	4,100	20⅛	19	19¾	General Asphalt	387,149	$10	....	6-15-32	27	4⅝	15½	4⅜	47	9⅝
5⅝	4⅜	1,600	5⅜	4⅞	4⅞	Houston Oil (new)	1,098,618	$25	....	10-17-30	7⅜	1⅞	5⅜	1⅛	14⅛	3
3⅜	1¾	1,700	2⅞	2⅝	2⅝	Louisiana Oil Refining	1,302,158	N.P.	....	.....	4	⅝	2¼	½	4½	1
14⅜	11⅝	5,800	14	13½	13½	Mid-Continent Petroleum	1,857,912	N.P.	25c	5-15-34	16	3⅜	8⅞	3⅜	16⅜	5
19¼	11½	6,600	19¼	17	18½	National Supply of Delaware	382,591	$25	....	5-15-31	28⅝	4	13	3½	70¼	5
15⅞	12⅝	16,900	14	13⅛	13¼	Ohio Oil Co.	6,563,107	N.P.	....	12-15-32	17⅝	4¾	11	5	19½	5⅛
8⅝	6½	5,500	8⅝	7½	8⅛	Pacific Western Oil	1,000,000	N.P.	25c‡	10-25-33	9½	3	8	3	15	2⅞
2½	1¼	2,500	2½	2¼	2¼	Panhandle P. & R.	198,770	N.P.	....	.....	4¼	⅜	1¼	¼	4¼	⅝
20¾	15¼	58,900	20¾	19⅝	20	Phillips Petroleum	4,155,113	N.P.	25c	5-14-34	18¾	4¾	8½	2	16⅝	4
16¾	12½	18,200	14¼	12½	12¾	Plymouth Oil Co.	990,261	$5	25cQ	3-31-34	17⅝	6¾	12½	6	19	6
14⅞	10⅛	16,100	13⅜	12⅝	12¾	Pure Oil	3,038,370	N.P.	....	9- 1-30	15⅜	2½	6½	2⅞	11⅞	3¼
39⅛	35¼	700	36½	35¼	35¼	Royal Dutch N. Y. shares	432,224	$14	$1.07½	8-14-33	39¾	17⅝	23¾	12⅛	42⅝	13
38⅜	25⅜	12,100	38⅜	35¾	36⅞	Seaboard Oil of Delaware	1,204,460	N.P.	15cQ§	3-15-34	43⅜	15	20⅜	6⅝	20¾	5½
11⅞	7⅝	9,400	10⅛	9⅝	9¾	Shell Union Oil	13,070,625	N.P.	....	6-30-30	11⅝	4	8¾	2½	10¼	2½
89	58	300	79	77⅞	77⅞	Shell Union Oil pfd.	400,000	$100	....	7- 1-31	61	28½	65¼	18	78	15
11¼	9	400	9⅞	9¾	9¾	Simms Petroleum	461,000	$10	25c	1-17-34	12⅜	4⅞	7½	3¼	11	3½
11½	7⅞	1,800	11	10½	10¾	Skelly Oil	1,008,514	$25	....	12-15-30	9⅞	3	5¾	2½	12⅞	2
19⅞	15⅛	43,700	17	16¼	16¼	Socony-Vacuum	31,019,694	$25	15c	3-15-34	17	6	12¼	5¼	21	8⅜
42⅞	36⅝	21,600	38⅛	37⅜	37⅜	Standard Oil of California	13,102,900	N.P.	25c	3-15-34	45	19½	31⅞	15⅛	51¾	23⅛
38¼	33⅞	2,400	38	36½	38	Standard Oil of Kansas	200,000	$10	50cQ	4-30-34	39⅞	12⅜	16½	7	19	7⅜
50⅛	44¼	33,300	46⅞	45⅜	45½	Standard Oil of New Jersey	25,740,965	$25	50cSA	12-15-33	47½	22¾	37⅜	19⅞	52½	26
61½	51½	1,800	61¼	60¾	61¼	Sun Oil	1,591,110	N.P.	25cQ	3-15-34	59	35	39⅞	24⅜	45¼	26¾
29⅜	23½	16,500	28	26¾	27	Texas Corp.	9,486,417	$25	25cQ	4- 1-34	30½	10¾	18¼	9¼	36¼	9⅞
6½	3⅛	9,300	5⅜	4¾	4⅞	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	6½	1⅜	4	1½	6½	1⅞
13	8½	60,900	13	11¾	12⅞	Tide Water Associated	5,613,800	N.P.	....	2-16-31	11¾	3⅛	5⅝	2	9	2¼
82	64½	2,700	82	77	82	Tide Water Associated pfd.	666,524	$100	$1.50Q	12-23-33	65¼	23½	60	20	68	20½
20½	15⅞	7,600	18⅜	17½	17⅞	Union Oil of California	4,386,070	$25	25cQ	5-10-34	23⅜	8½	15⅜	8	26⅝	11
21	15⅝	2,000	20	19	20	Union Tank Car	1,200,000	N.P.	30cQ	3- 1-34	22¾	10½	19¼	11¾	25⅛	16
5¾	3⅝	3,800	5½	4¾	4¾	Wilcox Oil & Gas	424,839	$5	....	5-10-28	5½	2	8¾	2¾	9⅜	2¾

*Ex-dividend. †Payable in 5 per cent convertible preferred stock. ‡Initial dividend. §Plus extras.

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1934 High	1934 Low	Week ended April 14 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	1933 High	1933 Low	1932 High	1932 Low	1931 High	1931 Low
38	31¾	200	35	32	35	Buckeye Pipe Line Co.	200,000	$50	75cQ	3-15-34	39¾	25	35	17½	56	30
5½	2¾	12,600	5¼	4½	5	Carib Syndicate	579,000	25c	....	.....	7¾	¼	⅝	¼	2⅜	¼
126½	118½	100	125	125	125	Chesebrough Mfg. Co.	120,000	$25	$1Q†	3-30-34	129	71	90	53	129½	75
4¼	1¾	25,800	2⅞	2¾	2⅞	Cities Service	37,804,394	N.P.	....	6- 1-32	6¼	1½	6⅞	1¼	20¾	5
3¼	1¼	2,900	3	2½	2⅝	Colon Oil	2,200,000	N.P.	....	.....	4	¼	1¼	¼	3⅛	¼
3⅞	1⅝	2,100	3⅛	2¾	2¾	Cosden Oil	399,687	$1	....	.....	3⅞	1⅜	2⅞	¼	3¾	⅜
13	9⅝	9,400	11½	11	11½	Creole Petroleum	6,974,356	$5	....	.....	12	4¾	3⅛	1¾	3⅞	1⅝
7½	4¾	1,000	6¾	6⅜	6¾	Darby Petroleum	509,696	$5	25c	2-15-34	8	2½	7⅛	1⅝	2½	1⅝
2¼	1⅝	No sales ..	..	..	..	Derby Oil & Refining	263,162	N.P.	....	.....	2¾	⅞	3	1	6	1½
35¾	31	No sales ..	..	..	..	Eureka Pipe Line	50,000	$100	$1Q	2- 1-34	41¾	20	35	18	36	19
76¾	58½	4,900	68¼	65	66⅞	Gulf Oil Corp.	4,538,101	$25	....	10- 1-31	62	24	44¾	23	75½	25⅜
46¼	33½	19,600	46¼	44¼	45¾	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	4- 1-34	105½	40	55	35⅝	72	44½
15⅛	12⅝	47,800	15⅛	14⅛	15	Imperial Oil of Canada	26,742,792	N.P.	12½c‡	3- 1-34	15⅞	6½	10⅞	6¼	18¼	7⅜
6⅞	3¾	500	6	5¾	6	Indiana Pipe Line	300,000	$10	15cSA	5-15-34	8	3⅛	7½	2¾	21⅛	5½
26¾	19⅜	51,700	26¾	24⅜	26⅜	International Petroleum	14,247,088	N.P.	28cQ‡	3-15-34	23½	8⅞	12¼	8	15½	7⅜
3¾	2⅛	10,300	3¾	3¼	3½	Louisiana Land & Exp.	3,000,000	N.P.	....	.....	2¼	⅛	2½	½	2	½
5⅞	4	No sales ..	..	..	..	Lion Oil Refining	270,000	N.P.	....	10-27-30	9½	1¼	3½	⅞	6¾	1½
8¾	5¾	400	6¾	6½	6¾	Lone Star Gas	5,382,723	N.P.	16cQ§	3-31-34	11⅞	4¾	11	3⅜	29	5½
5⅜	4	4,200	5⅛	4¾	5⅛	Mountain Producers	1,682,182	$10	15cQ	4- 2-34	6½	2½	4¾	2⅛	5⅞	2
15¼	14	2,400	14⅞	14⅜	14⅜	National Fuel Gas	3,810,183	N.P.	25cQ	4-16-34	20	10	14⅝	8	26½	9¾
9½	8	100	8⅝	8⅝	8⅝	National Transit	509,000	$12.50	40cSA	12-15-33	10	5½	10½	6	17½	5
2⅛	1¾	2,100	1⅞	1¾	1¾	New Bradford Oil	1,445,202	$5	10c	3-15-34	2⅛	½	⅞	¼	1½	½
2¾	1	2,900	2½	1¾	1¾	New Mexico and Arizona	1,000,000	$1	....	.....	1⅞	½	1¼	⅜	3	¾
4¾	3	No sales ..	..	..	..	New York Transit	100,000	$5	15cSA	4-14-34	4⅞	3	9¾	7½	14½	5⅞
7	4⅝	300	6	6	6	Northern Pipe Line	120,000	$10	25cSA	1- 2-34	6⅛	4¼	5½	3⅛	35½	20
2⅝	⅞	11,300	2½	2⅛	2⅛	Pantepec Oil	1,608,700	N.P.	....	.....	3¾	⅛	⅝	1/16	2	⅜
3⅛	1¼	600	2⅞	2½	2½	Ryan Consolidated	296,931	N.P.	....	.....	4¼	⅝	2⅛	⅝	3	¾
7⅞	5¾	2,800	7¾	7¼	7¼	Salt Creek Producers	1,496,859	$10	20cQ	5- 1-34	9¼	3½	5½	2⅞	7⅝	2¾
24⅜	17½	2,500	24⅜	23	23⅞	South Penn Oil	1,200,000	$25	30cQ	3-31-34	22⅛	11	16½	9⅜	23⅞	9¼
4¾	4	No sales ..	..	..	..	Southern Pipe Line	100,000	$10	10cSA	3- 1-34	6	2⅛	10	3¾	17	7
47	41	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	4- 2-34	43	24½	37	27	42½	25
32¾	25	24,400	27½	27	27¼	Standard Oil of Indiana	15,941,894	$25	25cQ	3-15-34	34	17	25⅛	13⅛	38½	13½
17⅝	14⅝	4,300	17⅛	16⅝	17	Standard Oil of Kentucky	2,666,983	$10	25cQ	3-15-34	19¼	8⅜	15⅞	8⅞	23⅝	12⅛
16⅝	13½	100	15	15	15	Standard Oil of Nebraska	190,822	$25	25cQ	3-20-34	20½	11	19	10¼	36½	16
27½	23¼	900	24	23⅜	23⅜	Standard Oil of Ohio	753,740	$25	....	1- 3-33	41	15½	30⅛	15½	62½	23
2	1/16	2,400	1⅜	1½	1⅝	Sunray Oil	1,162,840	$5	....	4-15-31	1½	¼	⅝	⅛	5¼	¼
11	5⅝	1,100	7¼	6⅞	6⅞	Texon Oil & Land	936,028	N.P.	15c	3-31-34	13¾	6¼	10½	4½	12⅞	2½

*Ex-dividend. †Plus extras. ‡Payable in Canadian funds. §Payable in preferred stock.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

Oklahoma-Kansas and Eastern Monthly Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR JANUARY

Runs

Company—	Month (bbls.)	Dly. av. (bbls.)
Gulf Pipe Line Co.	1,139,792	36,768
Texas P. L. Co.	629,730	20,314
Empire P. L. Co.	1,860,880	60,028
Magnolia P. L. Co.	1,514,382	48,851
Cosden P. L. Co.	684,272	22,073
Stanolind P. L. Co.*	2,479,224	79,975
Oklahoma P. L. Co.	2,478,156	79,941
Other lines*	7,874,000	254,000
Total January	18,660,427	601,950
Total December	18,290,879	590,029
Difference	369,558	11,921

Shipments

Gulf P. L. Co.	1,008,188	32,522
Texas P. L. Co.	1,050,162	33,876
Empire P. L. Co.	1,837,252	59,266
Magnolia P. L. Co.	1,144,266	36,911
Cosden P. L. Co.	686,959	22,160
Stanolind P. L. Co.†	3,765,570	121,470
Oklahoma P. L. Co.	2,341,384	75,529
Other lines*	7,750,000	250,000
Total January	19,583,771	631,734
Total December	18,909,577	609,986
Difference	674,194	21,748

Stocks

	Bbls.
Prairie O. & G. Co.*	31,210,000
Gulf P. L. and Gypsy Oil Co.	7,608,451
Texas Co.	5,522,800
Empire P. L. Co.	5,667,040
Mid-Continent Petroleum Corp.	2,526,275
Stanolind Crude Oil Pur. Co.*	14,060,000
Magnolia Petroleum Co.	6,907,441
Oklahoma P. L. Co.	1,279,504
Carter Oil Co.	2,737,704
Other lines*	22,272,000
Total January	99,791,215
Total December	98,450,501
Difference	1,340,714

*Estimated. †Stanolind Pipe Line Co. shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF FEBRUARY

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for January and February:

	Jan., 1934	Feb., 1934
Nat. Transit	278,749.97	205,751.41
S. W. Pa. P. L.	75,988.91	59,190.33
Eureka P. L.	273,049.30	229,601.02
Buckeye P. L. (Macksburg)	245,154.06	198,916.31
Buckeye P. L. (Cleveland)	9,246.22	6,952.70
Buckeye P. L. (Lima, etc.)	67,797.33	43,655.13
Stoll Oil Ref.	26,547.00	21,201.00
Bradford Tran.	444,388.14	368,336.94
N. Y. Transit	35,588.40	27,192.48
Tide Water P. L.	23,153.05	22,311.02
Pure Oil	630,500.24	628,885.60
Daugherty Ref.	586.00	586.00
Valvoline Pipe	74,941.32	59,737.57
Other companies	297,037.93	218,128.35
Total	2,282,728.42	2,090,945.35
Daily average	73,636.31	74,676.62

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan., 1934	Feb., 1934
Nat. Transit	542,763.21	425,306.56
S. W. Pa. P. L.	418,931.64	469,070.43
Eureka P. L.	246,234.03	204,648.89
Buckeye P. L. (Macksburg)	257,703.63	165,969.90
Buckeye P. L. (Cleveland)	1,705.05	974.81
Buckeye P. L. (Lima, etc.)	1,133,264.10	1,081,241.73
Indiana P. L.	792,461.30	832,564.65
Bradford Tran.	403,569.69	371,335.74
Southern P. L.	21,421.86	5,467.01
Tuscarora Dev.	239,176.13	167,133.97
N. Y. Transit	185,509.24	146,828.75
Northern P. L.	121,855.53	43,309.33
Tide Water P. L.	415,887.18	369,347.70
Pure Oil	676,360.69	615,042.61
Valvoline P. L.	44,347.39	38,277.33
Other companies	201,638.72	173,578.99
Total	5,717,929.44	5,110,098.40
Daily average	184,449.66	182,503.51

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of January and February:

	Jan., 1934	Feb., 1934
Nat. Transit	368,381.07	344,175.68
S. W. Pa. P. L.	433,315.95	423,472.79
Eureka P. L.	915,598.39	912,320.34
Buckeye P. L. (Macksburg)	255,911.45	311,574.10
Buckeye P. L. (Cleveland)	36,849.02	37,163.19
Buckeye P. L. (Lima, etc.)	2,579,372.54	2,517,130.76
Indiana P. L.	441,369.61	426,113.99
Bradford Tran.	325,421.64	323,069.13
Southern P. L.	110,300.44	107,585.16
Tuscarora	5,533.44	5,571.53
N. Y. Transit	91,784.99	100,621.96
Northern P. L.	197,530.00	170,680.75
Tide Water P. L.	759,485.55	773,671.89
Pure Oil	862,546.51	786,465.15
Valvoline	125,698.65	110,817.17
Other companies	106,159.52	93,408.66
Total	7,615,558.77	7,443,792.28
Increase	149,161.43	
Decrease		171,766.49

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of January and February, showing gross stocks of the above fields:

	Jan., 1934	Feb., 1934
Pennsylvania	2,530,257.89	2,441,275.74
Lima	406,396.17	352,836.53
Kentucky		
Mid-Continent	4,281,792.36	4,359,319.74
Illinois	616,220.06	593,916.21
Michigan	804,726.72	748,432.43
Total	8,639,392.20	8,495,630.65

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1931	1932	1933	1934
Jan.	53,939	53,501	64,493	73,636
Feb.	55,163	55,498	58,140	74,677
Mar.	54,331	57,199	59,417	
Apr.	54,914	57,348	61,813	
May	53,314	59,105	66,755	
June	54,110	64,371	67,370	
July	50,723	63,402	68,100	
Aug.	51,503	67,676	77,537	
Sept.	61,345	65,423	83,193	
Oct.	65,595	65,960	84,686	
Nov.	59,819	60,602	85,391	
Dec.	61,835	57,401	73,257	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1931	1932	1933	1934
Jan.	175,269	186,551	198,996	184,450
Feb.	183,494	169,856	187,928	182,504
Mar.	189,508	188,793	183,632	
Apr.	191,450	202,036	181,940	
May	199,247	201,404	199,671	
June	221,155	201,632	211,980	
July	211,632	202,559	213,417	
Aug.	224,166	187,829	211,123	
Sept.	217,537	170,524	212,913	
Oct.	210,831	188,504	214,362	
Nov.	196,425	189,626	207,433	
Dec.	176,241	186,135	178,884	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1932	1933	1934
Jan.	9,023,914	7,608,270	7,615,559
Feb.	8,974,350	7,302,746	7,443,792
Mar.	8,802,192	7,279,843	
Apr.	8,908,461	7,212,548	
May	8,835,726	7,016,621	
June	8,732,724	6,766,038	
July	8,176,956	6,713,942	
Aug.	8,128,576	6,617,276	
Sept.	7,895,421	6,601,134	
Oct.	7,421,620	6,852,809	
Nov.	7,116,300	7,134,944	
Dec.	7,130,420	7,466,397	

Illinois Pipe Line

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Feb. 28	583,594.66
Runs from wells	360,899.01
Other receipts	16,203.19
Regular deliveries	309,405.58
Other deliveries	91,978.51

Average Daily Imports of Crude and Refined Oil at Principal United States Ports

Average barrels per day in 1933-34—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
March	7,710	4,390	101,258	36,292	16,000	165,290	.....	.....	.....	.....	.....	165,290
April	10,000	6,700	73,433	32,267	9,967	132,367	.....	.....	.....	.....	.....	132,367
May	4,258	2,194	62,484	32,548	2,355	94,839	.....	.....	.....	.....	4,355	99,194
June	4,833	.....	46,967	29,967	5,233	87,000	.....	.....	.....	.....	.....	87,000
July	10,645	2,452	91,258	33,161	2,968	140,484	.....	.....	.....	.....	6,194	146,678
August	13,774	2,452	112,193	33,484	6,742	168,645	.....	.....	.....	.....	2,161	170,806
September	7,667	.....	51,733	27,733	3,267	90,400	.....	.....	.....	.....	.....	90,400
October	7,613	1,516	60,581	23,967	.....	93,677	.....	.....	.....	.....	1,452	95,129
November	11,533	1,900	71,700	14,534	2,600	102,267	.....	.....	.....	.....	1,966	104,233
December	8,871	.....	77,258	25,161	7,677	122,968	.....	.....	.....	.....	6,419	129,387
January	11,387	.....	71,548	27,333	4,452	114,720	.....	.....	.....	.....	2,193	116,903
February	10,071	2,571	82,500	19,107	7,429	121,679	.....	.....	.....	.....	6,035	127,714

Average Daily Receipts of California Crude and Refined Oil at Atlantic and Gulf Ports

Average barrels per day in 1933-34—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans, Baton Rouge	Port Arthur, Sabine Pass	Tampa	Total	Total all ports
March	5,065	.....	16,516	9,968	13,935	45,484	.....	.....	.....	.....	7,484	52,968
April	6,000	.....	14,500	7,733	4,934	33,167	.....	.....	.....	.....	4,900	38,067
May	4,194	.....	15,255	14,393	5,871	39,613	.....	.....	.....	.....	4,452	44,065
June	1,267	.....	5,300	11,767	7,667	26,000	.....	.....	.....	.....	4,938	30,938
July	3,773	.....	17,323	24,097	15,194	60,387	.....	.....	.....	.....	.....	60,387
August	2,484	1,742	12,065	15,032	7,129	38,452	.....	.....	.....	.....	.....	38,452
September	3,433	1,600	14,233	11,633	10,400	41,300	.....	.....	.....	.....	1,300	42,600
October	1,806	3,387	26,516	7,484	22,129	61,323	.....	.....	.....	.....	.....	61,323
November	11,666	8,067	33,830	10,803	23,067	87,433	.....	.....	.....	.....	.....	87,433
December	3,032	10,419	41,194	7,419	25,710	87,774	.....	.....	.....	.....	5,032	92,806
January	2,806	13,539	26,516	5,323	29,971	80,356	.....	.....	.....	.....	.....	80,356
February	3,215	7,284	43,857	6,679	23,179	84,214	.....	.....	.....	.....	.....	84,214

Gross Production of Crude Oil in the United States for 12 Months

(In barrels of 42 gallons)

1933—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
January:	Month	14,460,282	12,575,832	26,116,932	2,871,282	993,457	2,021,117	2,241,610	3,112,000	64,391,512
	Daily average	466,461	405,672	842,449	92,622	32,047	65,197	72,310	100,387	2,077,145
February:	Month	13,107,943	12,592,132	25,092,332	2,801,512	880,208	1,793,443	2,096,612	2,747,000	61,110,332
	Daily average	468,109	449,719	896,156	100,054	31,436	64,052	74,879	98,011	2,182,512
March:	Month	13,414,980	15,479,726	34,242,444	3,604,539	943,702	2,070,695	2,371,469	3,118,000	75,246,555
	Daily average	432,741	499,556	1,104,595	116,276	30,442	66,797	76,499	100,581	2,427,276
April:	Month	14,262,943	11,746,170	27,306,582	3,492,990	909,120	2,156,736	2,309,470	3,017,000	66,101,011
	Daily average	475,431	391,539	910,219	116,423	30,304	71,893	76,949	100,567	2,170,034
May:	Month	14,817,633	13,552,797	49,151,776	3,277,103	928,667	2,116,296	2,394,558	3,177,000	89,315,830
	Daily average	477,988	437,187	1,585,141	105,713	29,957	68,268	74,018	102,161	2,881,156
June:	Month	14,344,654	14,360,910	39,907,737	3,210,150	901,770	2,009,831	2,329,650	3,191,000	80,165,702
	Daily average	478,155	478,697	1,330,258	107,035	30,059	66,994	74,655	106,367	2,672,190
July:	Month	15,140,528	18,406,374	39,031,468	4,068,130	946,926	2,143,314	2,421,720	3,474,000	85,232,760
	Daily average	488,414	593,754	1,259,080	131,230	30,546	69,139	78,120	112,065	2,762,347
August:	Month	15,536,841	18,808,382	37,683,671	3,908,294	971,292	2,281,151	2,436,883	3,850,000	85,476,514
	Daily average	501,188	606,722	1,215,602	126,074	31,332	73,582	78,577	124,194	2,757,307
September:	Month	14,673,846	16,603,890	33,511,172	3,729,000	953,580	2,247,451	2,427,960	3,890,000	78,036,899
	Daily average	489,129	553,463	1,117,039	124,300	31,786	74,915	80,932	129,667	2,601,230
October:	Month	14,665,011	16,031,032	32,914,578	3,287,643	1,017,885	2,316,000	2,500,615	4,090,000	76,822,764
	Daily average	473,065	484,873	1,061,761	106,053	32,835	74,710	80,665	131,935	.....
November:	Month	13,933,559	14,364,030	27,986,117	3,599,400	986,910	2,235,810	2,434,920	3,927,000	69,367,746
	Daily average	464,452	478,801	932,871	119,980	32,897	74,526	81,164	130,867	2,312,258
December:	Month	14,767,800	14,835,174	28,864,593	3,455,725	1,016,118	2,337,811	2,494,477	3,935,000	71,606,697
	Daily average	476,381	478,554	931,116	111,475	32,778	72,189	80,467	126,799	2,309,893
	Total 12 months	173,125,420	178,356,449	401,808,452	41,305,768	11,449,635	25,629,655	28,169,944	41,428,000	901,273,323
	Daily average	474,316	488,648	1,100,845	113,186	31,369	70,216	77,169	113,200	2,469,243

PERSONAL PARAGRAPHS

SETH SMITH, field representative, Larkin Packer Company, Kilgore, Tex., made a business trip through West Texas.

* * *

MARK L. REQUA recently underwent an operation in a Los Angeles, Calif., hospital but has now returned to his home in Santa Barbara.

* * *

H. F. SCHOONOVER, general superintendent for the Pure Oil Company, at Fort Worth, Tex., is seriously ill with pneumonia in the Cook Memorial Hospital in that city.

* * *

CAROL VIRGINIA STEINMETZ, daughter of PETER and VIRGINIA STEINMETZ, Inglewood, Calif., arrived at Sylvan Lodge Hospital, March 30, weighing 5 pounds and 14 ounces. Mr. Steinmetz is advertising manager of Emsco Derrick & Equipment Company, Los Angeles, Calif.

* * *

D. R. WELCH, superintendent of the telephone and telegraph department of the Sinclair Prairie Pipe Line Company, Independence, Kans., is making an inspection trip of the company's lines in Texas with W. B. SHAKELEY, assistant superintendent of the department for the Sinclair Prairie Pipe line Company of Texas.

* * *

RUSH GREENSLADE, vice president, Gypsy Oil Company, Tulsa, has just returned from a trip to Washington, D. C., on company business.

* * *

JOHN E. VAN DALL, who has been district geologist for the Sinclair Prairie Oil & Gas Company in the Oklahoma City Field since 1929, has resigned that position to become district geologist for the Magnolia Petroleum Company with headquarters in Oklahoma City, Okla.

* * *

LOU M. TIDD, formerly with the Continental Supply Company, both in this and foreign lands, and more recently in the engineering department of the Shell Petroleum Corporation, has been made scout and land man at Oklahoma City, Okla.

* * *

C. MAX BAUER, head naturalist for the Yellowstone National Park, spent part of his vacation in Denver, Colo. Mr. Bauer formerly was an instructor in geology at the University of Colorado and prior to that was associated with the geological departments of several of the major companies.

* * *

G. S. BAYS, Stanolind Oil & Gas Company; H. C. FITZPATRICK, Sinclair Prairie Oil Company; L. R. HODELL, Carter Oil Company; R. J. LAUDER, Shell Petroleum Corporation, all of Tulsa, have been added to the fire prevention committee of the production division, American Petroleum Institute.

* * *

JOSEPH E. MORERO, who has been district geologist at Houston, Tex., for the Skelly Oil Company, has been made chief geologist with headquarters in Tulsa. He fills a position that has been vacant since 1930. He has been in the Skelly service since 1926, and served first in West Texas and New Mexico as scout and geologist, and opened the Gulf Coast office. Mr. Morero is a native of California, and was educated at Leland Stanford University.

EDDIE BROMBELOW, petroleum engineer, Humble Oil & Refining Company, has been transferred from McCamey to Penwell, Tex.

* * *

W. T. SMITH, formerly district land man for the Stanolind Oil & Gas Company, Tyler, Tex., has been transferred to the Fort Worth offices.

* * *

ROY McCARTY, petroleum engineer, Humble Oil & Refining Company, was recently transferred from East Texas to West Texas, with headquarters at McCamey.

* * *

JOHN B. TONKIN, president of the Peoples Natural Gas Company, Pittsburgh, Pa., accompanied by MRS. TONKIN, are on a 12,000-mile cruise to the Mediterranean, expecting to return May 4.

* * *

NIC. N. STEFANESCU, chief engineer, of the Industrie Romana de Petrol Company (I.R.D.P), Rumania, who is also a director of the Oil Equipment and Engineering Exposition of Houston, Tex., was much interested in checking the newest engineering developments at the exposition. MR. WEGNER, of the Argentine government, and N. V. VANNIKOFF, of the U.S.S.R., were also interested visitors at the Houston show.

E. P. DILLMAN, of the Wyatt Metal & Boiler Works, Dallas, Tex., is spending some time in Tulsa calling on the oil trade.

* * *

J. A. WALES, accompanied by MRS. WALES, of Montreal, Canada, spent the past week in Houston, Tex. Mr. Wales is vice president of McColl-Frontenac Company.

* * *

ALBERT MARSDEN, one of the Glasgow, Scotland, representatives of the Vacuum Oil Company, completed 45 years' service with the company, the occasion being celebrated by a presentation from his colleagues.

* * *

R. B. HIGH, of St. Louis, Mo., Shell Petroleum Corporation executive, and his daughter, Betty, flew to Roswell, N. Mex., to be with his son, William, suffering from pneumonia, but now reported out of danger.

* * *

PAUL E. MAHAFFEY, president of the Happy Belting Company, MRS. MAHAFFEY and young son, JACK, and ROY LINDLEY, treasurer of the company, are making an automobile trip through the East Texas Field, to Shreveport, La., and El Dorado, Ark.

* * *

E. H. HUNT, of the geological department of the Texas Company recently gave a comprehensive and interesting paper on the Cut Bank Field in Montana before a meeting of the Rocky Mountain Association of Petroleum Geologists in Denver, Colo.

* * *

F. O. PRIOR, C. S. SANDERS and W. R. COLVIN, of the Stanolind Oil & Gas Company, Tulsa, and T. A. DINES, JOHN T. BARNETT, A. R. KLINE, and HAROLD D. ROBERTS, of Denver, Colo., were in Casper, Wyo., last week.

* * *

GRANT SPANGLER, who has been geophysical scout in northwestern Oklahoma for Stanolind Oil & Gas Company, has been transferred to the geological department as scout. He is succeeded at Enid by A. A. HOLSTEN, formerly geological scout.

* * *

PAUL FITZGERALD, of Mount Pleasant, Mich., geological engineer for Dowell, Inc., is in southern Alberta, Canada, where he is making a survey in the Turner Valley Field to determine the possibilities of Dowell service in treating wells with acid.

* * *

HAROLD M. ADKINSON, secretary for the Mid-Continent section of the American Association of Mechanical Engineers, Tulsa, is again in his office after two weeks spent on his honeymoon. Mr. Adkinson married MISS KATHERINE DRAKE of Tulsa, April 4.

* * *

H. C. WAKEFIELD, assistant superintendent of the Texas Company's refinery at Casper, Wyo., is to be transferred to the company's plant at Price, Ky. Mr. Wakefield and family have left for Port Neches, Tex., where he will receive a 30-day course of training in the manufacture of asphalt before taking over his new position in Price. P. BEAL, formerly manager of the Texas refinery at Cody, Wyo., which is now shut down, is to succeed Mr. Wakefield as assistant superintendent of the Casper refinery.

DO YOU REMEMBER?

From The Oil and Gas Journal Files

25 Years Ago

April 19, 1909

The Texas & Pacific Railroad Co. has equipped one of its switch engines to burn oil and if it is satisfactory passenger engines will be similarly equipped.

Charles O'Connor has been made general manager of the United Oil & Refining's plant at Beaumont. He has had 28 years' experience with Standard refineries near New York.

J. E. Crosbie, of Sarnia, Ontario, has purchased all of Frank Chesley's holdings in the Bald Hill Pool in Okmulgee County, Oklahoma, consisting of 1,750 acres of leases, and wells producing 450 bbls. per day. Much of the property has not been explored. Mr. Crosbie is about to move his family to Tulsa and make the city his permanent residence.

20 Years Ago

April 23, 1914

W. R. Guiberson and family of Los Angeles, Calif., have decided to make Tulsa their residence. W. G. Long has moved his family from Wichita Falls, Tex., to Tulsa.

The production of the Creek Indian Nation in Oklahoma, including part of Tulsa, and all of Creek, Okmulgee and Muskogee Counties, is 108,000 bbls. per day, of which the Cushing Pool is producing 65,000 bbls., a new high record. Cushing is regarded as a "rich man's field," as it costs $10,000 to drill and complete a well in the Bartlesville sand.

The cost of completing a well and putting it on the pump in the Gulf Coast Field ranges from $1,000 to $25,000. The average cost is placed at $5,000.

Two weeks after it was completed, the well of A. E. Lloyd and others in Section 5, Dennison Township, Lawrence County, Illinois, is making 2,400 bbls. per day.

Tate Brady, of Tulsa, a Cherokee citizen, and oil producer, offers to raise a cavalry regiment of Oklahoma Indians if the United States goes to war with Mexico.

The I.W.W. is trying to "organize" oil field workers in Oklahoma.

10 Years Ago

April 17, 1924

Percy A. Little, Buffalo, N. Y., president of the Union Petroleum Co., says: "The oil business is a big game, played in the open, subject to all the vicissitudes of every other big business, plus a fight with nature to win one of her most deeply and uncertainly stored resources."

The deepest test to date in the Gulf Coast Field in Texas is Gulf Production Co.'s No. 13 Hager, Cow Bayou, Orange district, which is drilling at 5,800 feet.

Biggest well in 20 years in northwestern Ohio is completed by Zorn-Horning Oil Co., on the Schott farm, Harris Township, Ottawa County. It is good for 1,000 bbls. a day.

The United States pipe line, the original refined oil pipe line, running from the northwestern Pennsylvania fields to Marcus Hook, Pa., is being taken up. The pipe has been in the ground 30 years but is in excellent condition.

ROY H. HALL, a petroleum geologist of Wichita, Kans., visited friends in Tulsa last week.

* * *

E. C. MERRICK, of Denver, Colo., pioneer oil operator in Wyoming, was in Casper, Wyo., last week.

* * *

THOMAS D. PHILLIPS, secretary of the National Drilling Association, spent several days in Texas points last week.

* * *

NELSON C. BEIM, president of W. H. Barber Company of Minneapolis and Chicago, with MRS. BEIM, has been on a visit through the Mid-Continent area.

* * *

ARTHUR DAVIDOR, manager of the Mount Pleasant, Mich., branch office of the Atlantic Seaboard Natural Gas Corporation, is spending several days in Pennsylvania.

* * *

LAWRENCE JOHNSON, of Lusk, Wyo., was in Casper, Wyo., last week. Mr. Johnson is interested in leases and royalties in Lance Creek and other fields in eastern Wyoming.

* * *

CARL LYLE, formerly of the Saginaw, Mich., office of the Pure Oil Company, has been named chief clerk of the company's field office in Greendale Township, Midland County.

* * *

A. R. WILSON, division manager of the producing department of the Texas Company for the Rocky Mountain division, has returned to Denver, Colo., from a business trip to headquarters at Houston, Tex.

* * *

J. T. MURDOCK has acquired an interest in the Creekmore Drilling Company, and is now secretary-treasurer of that firm. C. B. CREEKMORE is president and JAMES CREEKMORE, vice president.

* * *

BAIRD H. MARKHAM was in Washington, D. C., last week.

* * *

H. C. STIPP, petroleum engineer for the Texas Railroad Commission, has been transferred from Kilgore to Big Spring, Tex. WALTER PIERCE, employed in the oil and gas division of the commission, has been transferred from Midland to Austin headquarters.

* * *

FRANK L. CHASE, vice president and operating manager of the Lone Star Gas Company, suffered a fractured shoulder when he tumbled from the floor of the Municipal Auditorium at Amarillo, Tex., into the orchestra pit, during a gas hearing. He was removed to his home in Dallas.

* * *

W. S. S. RODGERS, president of the Texas Company and of the Texas Corporation, has been making an inspection tour of Texaco properties. He was joined in the East Texas Field by T. J. DONOGHUE, vice president and general manager of the Texas Company, and escorted to Houston, where Mr. Rodgers was joined by R. OGARRIO, vice president of the production department.

* * *

J. FRED CAREY, field superintendent of the Bradner-Vaughan Development Company, has been named vice president while WILLIAM J. VAUGHAN was chosen president and general manager at a meeting of the stockholders in Detroit, Mich., last week. The company name also was changed to the Great Eastern Oil Company. BURCK C. BRADNER, former president, has resigned.

* * *

E. H. KIFER, president and general manager of the Muskegon Gas Company, Muskegon, Mich., who has returned to San Antonio, Tex., says he expects to resign from his Muskegon position and will open an office in San Antonio. Prior to accepting the presidency of the Muskegon company Mr. Kifer had been with the San Antonio Public Service Company 15 years, and was vice president and general manager when he left.

Tending Boiler Was His First Job

Ralph W. Gallagher, recently elected a director of the Standard Oil Company (New Jersey) and resigning the presidency of the East Ohio Gas Company to assume general supervision of all the natural gas interests of the Jersey organization, started as a boiler tender. When he was 16 he was obliged to give up school on account of his father's illness, but on top of his 12-hour tours with pipe line companies his mother kept him to the task of finishing his high school studies and later, with the help of the superintendent of schools, saw that he got some college work in engineering.

RALPH W. GALLAGHER

Mr. Gallagher's first job was in 1896 with the New York Transit Company at the Salamanca oil pumping station. He was called assistant engineer, but he confesses that his duties frequently lay at the operating end of a broom. There followed several years as sub-boiler, boiler, assistant engineer, tank gauger and field roustabout for the New York Transit Company, National Transit and United Pipe Lines.

In 1900 Mr. Gallagher was transferred to construction work on a parallel line which the East Ohio Gas Company was laying. Later he acted as foreman when the gas lines were extended to Cleveland in 1902, moving up as superintendent of town distributing systems outside of the city, and in 1908 was called to Cleveland by N. V. Daly, superintendent of the plant.

From then on Mr. Gallagher's advance was rapid. He became general superintendent of all the East Ohio's city plants and main lines, next a director, then manager and vice president, and when Mr. Daly died in 1926 he succeeded to the presidency. Mr. Gallagher in 1923 was elected president of the American Gas Association, the first natural gas man to be chosen to that office.

W. N. DAVIS has returned to Bartlesville, Okla., after a stay in Washington, D. C.

* * *

O. F. CAMPBELL, of the Sinclair Refining Company, East Chicago, Ind., was in Tulsa on business this week.

* * *

E. B. REESER, president of the Barnsdall Corporation, has returned to Tulsa from a business trip in the East.

* * *

J. S. (DOC) COOKE, of the American Petroleum Institute, New York, was in Washington, D. C., for several days on business.

* * *

WILLIS DROWN, of the Chicago offices of the Universal Oil Products Company, has spent several days in Tulsa and vicinity in the past week.

* * *

S. M. DECKER, administrative member of the compliance board of the American Petroleum Equipment Suppliers Association, is in Los Angeles, Calif., to hold meetings with bodies of suppliers.

* * *

G. L. BARRETT and FARRAR MEED, Gulf Pipe Line Company tank builders, are recovering from chemical burns in a Midland, Tex., hospital. The burns were suffered while painting the interior of tanks.

* * *

MARSHALL JOY and RAYMOND HUNT, who have been in charge of Dokenva Gas Corporation activities in Central Michigan fields for the past six months, have established a new Mount Pleasant office. Dokenva is a subsidiary of the Cities Service Company.

* * *

J. W. CARNES, vice president and general sales manager of the Sinclair Refining Company, New York; L. P. LOCKRIDGE, lubricating oil sales manager, and S. M. MOREY, advertising manager, attended a sales meeting of the southern branch operations of the company held recently at Atlanta, Ga.

ROSS SUGGETT, of Tulsa, was a visitor in Fort Worth, Tex., last week.

* * *

VALENTINE M. KIRK, of Frannie, Wyo., was in Casper, Wyo., last week.

* * *

ARTHUR J. KERR, manager, Pittsburgh Equitable Meter Company, Tulsa, is in Houston, Tex., this week.

* * *

W. R. BOYD, JR., executive vice president of the American Petroleum Institute, was in Washington, D. C., last week.

* * *

HARRY BUZAN, district salesman in the Pawhuska, Okla., area for Shell Petroleum Corporation, has been transferred to Springfield, Mo., as city salesman.

* * *

S. C. STATHERS, who retired some months ago as chief geologist of Standard Oil Company of Louisiana, has returned to Shreveport, La., after a vacation trip.

* * *

J. D. AHERN, well known oil man in the Rocky Mountain area, who has been in Texas for the past few years, again is making his headquarters in Denver, Colo.

* * *

REES POYNTER, production superintendent for the Santa Rita Oil & Gas Company at Cut Bank, Mont., was called to Virginia the past week by the death of his father.

* * *

G. D. THOMAS, division geologist for North Louisiana-Arkansas of the Shell Petroleum Corporation, was called to Denver, Colo., last week by the death of his mother.

* * *

H. D. EASTON, consulting geologist, is making his headquarters temporarily at Amory, Miss., from which point he makes airplane surveys of Northeast Mississippi and Northwest Alabama.

* * *

B. L. MAJEWSKI, of the Deep Rock Oil Corporation of Chicago, will be one of the key speakers at the twentieth annual convention of the Kansas Oil Men's Association to be held in Wichita, Kans., April 19 and 20.

* * *

STANLEY C. HEROLD, consulting geologist, has announced a course on mathematical analysis of petroleum problems and general review of college mathematics, Petroleum Engineering No. 121, in California University College.

* * *

E. B. HOPKINS, Dallas, Tex., who was elected vice president of the American Association of Petroleum Geologists at its convention, and DR. FREDERIC H. LAHEE, past president of the A.A.P.G. and retiring member of its executive committee, were honored at a luncheon given by the Dallas petroleum geologists.

* * *

AMONG those in Washington, D. C., for the hearing before the Labor Policy Board were: P. H. CURRY, South Penn Oil Company; VICTOR DOWNEY, National Refining Company; J. D. COLLETTE and E. R. LEDERER, Texas Pacific Coal & Oil Company; H. H. ANDERSON, Shell Petroleum Corporation; R. B. McLAUGHLIN and B. E. HULL, Texas Pipe Line Company; R. C. JOPLING, Phillips Petroleum Company; J. H. MAHONEY and J. E. SHATFORD, of the Louisiana-Arkansas Refiners Association; C. L. SUHR and D. W. GRANT, of Pennzoil Company; JOHN A. BECK, Pennsylvania Refining Company; J. G. McCAW, Freedom Oil Works Company; C. W. LULON, Valvoline Oil Company; G. B. HUNTER, Quaker State Oil Company; RAY MILLER, Natural Gasoline Association; A. E. FAINE; R. H. IVORY, Standard Oil Company of California; HOWARD BENNETTE, Western Petroleum Refiners Association; W. G. SKELLY, Skelly Oil Company; H. R. SMITH, Louisville Refinery; CARL WIENER, Chanute, Kans.; J. E. DYER, Sinclair Refining Company; D. S. BUSHNELL; W. J. BRUNDRED, Brundred Oil Company, and CHARLES F. ROESER,

Eastern Fields

(Continued from Page 75)

In Roane County a new test is that of R. L. McCulty and others on the O. M. Young farm in Smithfield district. In this district, United Fuel Gas Co. is down 995 feet in No. 4,385 on the Frank Looney farm and the same company is building a rig for No. 4,387 on the W. R. Wright farm. In Curtis district, Reedy Oil & Gas Corp. is down 1,820 feet on the W. R. Wright farm. Henderson Oil Co. has reached 925 feet in a second test on the F. H. Bee farm. In Spencer district, Guy Boggess and others are drilling at 770 feet on the William Stine farm.

In Doddridge County, Hope Construction & Refining Co. reached 1,140 feet in No. 3,568 on the Harvey Smith farm in West Union district and shut down with a fishing job. In Marshall County, Manufacturers Light & Heat Co. is drilling at 2,050 feet in No. 3,474 on the August Wend farm and 1,305 feet in No. 3,512 on the James Reid farm, both in Liberty district.

SOUTHWEST PENNSYLVANIA

Two gas wells were the only completions in Southwest Pennsylvania. Activity in new work has dwindled and efforts are being concentrated on reconditioning old oil wells.

In Greene County, Dunn Mar Oil & Gas Co. drilled No. 1 on the John Barger farm in Springhill Township deeper and completed it as a gas well in the Big Injun sand at 2,306 feet. It is showing for 340,000 feet.

In Washington County, James McCracken & Co. completed a test on the H. B. Saunders farm in Morris Township in the Gas sand with a total depth of 1,781 feet. The top of the sand was 1,730 feet with gas showing at 1,776-80 feet and the Pittsburgh Coal at 973 feet. It gauged about 872,000 feet a day.

In Amwell Township, Washington County, Raymond Orrill & Co. are plugging the entire well in No. 3 on the G. L. Walker farm with both the Niveveh Thirty Foot sand and the Fifth sand failing to produce. Manufacturers Light & Heat Co. is rigging up on the Hulda Jenkins farm, No. 2 standing as a location.

In East Findley Township, Washington County, Levier and others are drilling at 500 feet on the James Marshall farm.

In Greene County, Phillips Conklin and others have reached 1,200 feet on the James McClure farm on Meadow Run. In Dunkard Township, Fred Garrison has abandoned and is plugging a test on the G. W. Everley farm after testing the sand at 680 feet.

In Slippery Rock Township, Butler County, James H. Duff is drilling deeper on the Munnell farm near Harlansburg and have reached 4,850 feet. The tools are 400 feet in the black lime under the Oriskany sand.

Louisiana-Arkansas Fields

(Continued from Page 66)

Survey, was dry and abandoned at 2,115 feet.

In Cass County, R. Karnon and others have spudded in on their No. 1 Savage, Mary Patterson Survey, with 10-inch surface set at 60 feet. In the same county, J. D. Kneen's No. 1 E. H. Ball, Cass County School land, is rigged up and shut down. Harrison County, R. C. Payne and others' No. 1 Lowery, Spain Survey, is drilling at 3,445 feet. Panola County, W. H. Nichols and others' No. 1 S. W. Ray, William P. Culin Survey, set 7-inch casing at 2,032 feet with the total depth at 2,080 feet. The hole was bailed down 1,000 feet with a good show of oil and gas, and in attempting to set 5-3/16-inch liner, it was stuck 200 feet off bottom. The crew is now fishing for the liner. Sebring and others' No. 1 J. T. Bozeman is drilling in lime and shale at 2,300 feet.

GEOLOGY OF PETROLEUM

By Dr. WILLIAM HARVEY EMMONS
Head, Department of Geology and Mineralogy, University of Minnesota

1931 edition; 736 pages; 435 illustrations

L. G. E. Bignell, Petroleum Engineering Editor, The Oil and Gas Journal, says in his review of this book:

In preparing this book Doctor Emmons had in mind presenting to the public a textbook and a brief compendium or manual relating to the geology and deposits of oil-bearing areas. Essentially all of the world's oil fields are briefly treated, with references to the important literature.

This book should find a place in every oil man's library, for it will serve as a ready reference to many geological problems that will come up in the course of his work, and also as a means of securing general geological data upon most of the important fields in this and foreign countries.

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

Oklahoma Fields

(Continued from Page 69)

Magnolia Petroleum Co.'s No. 3 Street, NE NW NE Section 3-17-8, is a 100-bbl. Layton sand completion at 1,302-34 feet.

C. W. Titus' No. 3 Casey, SW cor. SE Section 3-17-8, was completed. It is a 40-bbl. well at 1,278-1,306 feet, after a shot.

New work started in the past week included Deep Rock Oil Co.'s No. 1 Harris, SE NW Section 9-18-5, Payne County, deepening from 3,523 feet and drilling at 3,554 feet; F. L. Marrs' No. 3 Wilson, NE cor. SE Section 34-18-8, rigging up; Indo Oil Co.'s No. 2 Miller, SW NE SE Section 32-18-11, drilling at 325 feet; E. J. Jordan's No. 4 Bishop, C SW SW Section 13-17-8, rigging up.

Greater Seminole

Carter Oil Co. and others' No. 1 Jarvis, C E half NE SW Section 18-10-6, Seminole County, swabbed 25 bbls. per hour from sand at 4,593-96 feet and tanks were being set. There was some water and b.s. with the oil.

Atlantic Oil Producing Co. and Sinclair Oil Co.'s No. 2 Foreman, C SE SW Section 18-9-5, Earlsboro area, was completed in Hunton lime at 4,111-36 feet, where it made 220 bbls. initially after an acid treatment.

Atlantic Oil Producing Co. and Phillips Petroleum Co.'s No. 1 Bobbs, C NW NW Section 18-9-5, was completed. It produced 697 bbls. from Hunton lime, acidized.

Phillips Petroleum Co.'s No. 1 Stark, C NE NE Section 19-19-5, was reacidized in Hunton lime and flowed 365 bbls. in 19 hours.

Barnett Plan, trustee's No. 1 Harris, SW NW SE Section 36-8-7, Seminole County, was abandoned at 3,080 feet and a new hole started on the same location, which had reached a depth of 1,100 feet.

Deep Rock Oil Co.'s No. 4 Smith, 550 feet from north line and 375 feet from the west line, NE Section 30-8-8, had sand at 3,105-66 feet and swabbed 100 bbls. in 12 hours.

Vivian Oil Co.'s No. 3 Duval, SW SE SE Section 4-7-4, South St. Louis, Pottawatomie County, was acidized in Hunton lime at 3,731-3,810 feet and flowed 1,092 bbls. in 48 hours. It was to be deepened.

Conley Drilling Co.'s No. 1 Vinson, NE cor. Section 13-7-4, had Hunton lime at 3,535 feet; Sylvan at 3,770 feet; total depth 3,771 feet. It was acidized and made 187 bbls. in 24 hours, pinched in. Tanks were being built.

In the Holdenville district Dundee Oil Co.'s No. 1 Pickens, NE cor. Section 21-7-8, is a 30-bbl. completion in sand at 3,060-90 feet.

Baker & Morris' No. 1 Jacobs, NW SW SW Section 22-7-8, was dry in the Calvin sand at 1,160-80 feet and was abandoned.

Sinclair Prairie Oil Co. had rig up for No. 2 Spencer, SE SW SE Section 13-9-6. Superior Oil Co. was drilling at 4,052 feet in No. 1 Caudle, SW NW NW Section 24-7-4, which is being deepened from 3,773 feet.

Mid-Western Oil Co. has made a location for No. 2 Ogden, C S half NE NW Section 8-7-18, Haskell County.

Tate and Starbuck have machine in for No. 1-A Heard, SE NW Section 9-6-7, Seminole County. Stanolind Oil & Gas Co. and Amerada Petroleum Corp. have made a location for No. 1-A Aldridge, C N half S half SE Section 2-5-7, Allen district, Seminole County.

Garvin County

In Garvin County Anderson & Kerr's No. 1 Rodka, NW NE NW Section 21-4-1w, drilling at 4,968 feet in a hole full of water which showed first at 4,958 feet. Phillips Petroleum Co.'s No. 1 Dennis, C SE SE NE Section 9-4-1, was swabbing water at 4,190 feet, to which depth it had been plugged back from 4,670 feet. Carter Oil Co.'s test, No. 1 Hanner, SW NE SW Section 24-5-1w, was drilling in lime at 3,355 feet.

Pontotoc County

F. W. Merrick, Inc., has cellar dug for No. 1 Norris, SE cor. Section 27-2-6, Pontotoc County.

Manahan Drilling Co. completed No. 1 Norris, SE NW SE Section 18-2-7, Fitts Pool. It is a 100-bbl. well in Booch sand at 1,746-73 feet.

Manahan Drilling Co. and others completed No. 1 Reynolds-Wagner, C SW NE SE Section 18-2-7, at a total depth of 1,767 feet. It tested 230 bbls. in 24 hours from shallow sand topped at 1,725 feet.

Boettcher's No. 1 Burris, NW NE NW Section 27-2-7, was completed. It was a 20,000,000-foot gas well from sands at 1,030-37 feet and 1,135-45 feet.

Crosbie & Moran's No. 1 Hardin, SW cor. NE Section 30-2-7, blew out on Saturday, making an estimated 50,000,000 feet of gas. The crew was preparing to set casing at 1,810 feet to shut off the gas and drill deeper for the oil sand when the well got out of control. This well penetrated a gas sand at 1,210-1,305 feet.

On the Coal County side of the Fitts area of exploration, Westheimer & Daube were drilling at 4,020 feet in Atoka formation in No. 1 Lowman, C NE SE Section 18-2-8, and Moore & Deaner were drilling at 3,470 feet in Atoka formation in No. 1 Edwards, NW NE SE Section 27-2-8.

F. F. Stevens was drilling at 460 feet in a wildcat test, No. 1 Green, SE SW Section 11-1-13w, Atoka County.

Gilcrease Oil Co. was drilling at 400 feet in No. 1 Brown, SW cor. Section 26-1-2, Murray County.

Southern Counties

In Marshall County, Centrop Oil Co. completed No. 2 Burge, SW SE NE SE Section 25-7s-5e, in sand at 528-38 feet. It was good for 35 bbls. of oil, with 17 bbls. of water, per day. Mitchell & Kilbourne's No. 3 Burge, CWL NE SE SE Section 25-7s-5e, is a 35-bbl. completion at 526-29 feet.

R. A. Godfrey has machine in for No. 1 Burge, CEL NW SE SE Section 25-7s-5e, and Mitchell & Kilbourne had 450 feet of oil in the hole from sand at 519-22 feet in No. 4 Burge, SW NE SE SE Section 25-7s-5e, and has location made for No. 5 Burge, CWL SE SE SE Section 25.

In Jefferson County, Moday Oil Co. had pipe set at 22 feet in No. 1 Trout, SW SE SW SE Section 19-6s-5w, and Jack Cohen had rig on the ground for No. 1 Seay, SE NE SW SE Section 29-6s-5w.

In Stephens County, Owl Oil Co.'s No. 19-A Bailey, SE NE Section 9-3s-5w, is a 2-bbl. well at 436-47 feet, in which sand it was completed. Pace and others completed No. 4 Payne, NW SE NE NW Section 28-2s-7w, a 37-bbl. pumper at 1,674-81 feet.

J. S. Armor was rigging up No. 1-8 Drummond, NW SE NW Section 5-1s-8w. L. Sykes was rigged up on No. 1-A Mulkey, C NE Section 16-1s-8w.

L. Sykes' No. 3 Blake, NW NE NE SW Section 16-1s-8w, had sand at 2,107-17 feet. The well swabbed 7 bbls. per hour with a little water.

In Carter County, Skelly Oil Co.'s No. 2 Westheimer, NE cor. SW Section 8-2s-2w, flowed 130 bbls. in 13 hours from a sand series 1,400 to 2,422 feet.

Carter Oil Co. abandoned No. 2 M. Riddle, C SE SW NE Section 4-1s-3w, a hole full of water at 2,842 feet.

Amos Drilling Co.'s No. 2 Mitchell, C SW SE NW Section 19-1s-2w, is a 25-bbl. well producing 22-gravity oil from sand at 1,198 feet. It was not completed.

ALFRED J. JUPP DEAD

Alfred J. Jupp, 59, a vice president of the Lunkenheimer Co., Cincinnati, Ohio, died suddenly in Roosevelt Hospital, New York, Tuesday, April 10, while on a business trip. Mr. Jupp entered the employ of the Lunkenheimer Co. in 1890. He was active in the Manufacturers Standardization Society and contributed much of his time during recent months to code work in the valve and fittings industry.

Proper Design of Power Plants Pays Dividends

(Continued from Page 12)

bine, only part is used in making up the total heat input as shown in the foregoing table.

The parts used are proportional to the total heat per pound of steam as follows:

Line	B.t.u./lb.	Part	B.t.u. used	Ttl. lbs.
1a	412	0.7890	325.0	30,945
2a	95	0.0680	6.5	2,700
3a	197	0.0715	14.0	2,800
4a	197	0.0715	14.0	2,800
Total, per lb.			359.5	39,245

$$\frac{14{,}100{,}000 \text{ B.t.u.}}{359.5 \text{ B.t.u./lb.}} = 39{,}245 \text{ total pounds per hour}$$

$$\frac{39{,}245 \text{ lbs.}}{3{,}000 \text{ K.V.A.}} = 13 \text{ lbs. water per K.V.A.}$$

This gives the plant water rating and is higher than the turbo-generator rating that would be guaranteed by the manufacturer of that equipment. The manufacturer's rating would be based upon all steam passing the turbine with credit for heat recovered of 89 B.t.u. per pound.

$$\frac{14{,}100{,}000 \text{ B.t.u.}}{448.5 \text{ B.t.u./lb.}} = 31{,}440 \text{ total pounds per hour}$$

$$\frac{31{,}440 \text{ lbs.}}{3{,}000 \text{ K.V.A.}} = 10.5 \text{ lbs. water per K.V.A.}$$

Heat Balance

To obtain the heat balance of the power plant a step-by-step balance is used. Unit values and ratios are unchanged for any size power plant. The total quantitive values are directly proportional to the size of the plant, used for comparison with the plant described. The results of the calculations are given in the following tables:

1. Steam to turbine, at 400 pounds pressure, exhausting at 26-inch hg. vacuum, 125° F.:

	B.t.u./lb.	Ttl. B.t.u.
1 30,945 lbs.	1,361	42,100,000
1a for power	412	12,700,000
1b to condenser	856	26,500,000
1c condensate	93	2,900,000

2. Steam to turbine, at 400 pounds pressure, exhausting at 150 pounds pressure, 550° F., thence to heat exchanger (closed feed-water heater), condensing at 120 pounds pressure, 350° F.:

	B.t.u./lb.	Ttl. B.t.u.
2 2,700 lbs.	1,361	3,700,000
2a for power	95	250,000
2b to H. E.	948	2,550,000
2c condensate	318	900,000

3. Steam to turbine, at 400 pounds pressure, exhausting at 40 pounds pressure, 337° F., thence to evaporator, condensing at 6 pounds pressure, 230° F.:

	B.t.u./lb.	Ttl. B.t.u.
3 2,800 lbs.	1,361	3,800,000
3a for power	197	575,000
3b to evaporator	966	2,675,000
3c condensate	198	550,000

4. Steam to turbine, at 400 pounds pressure, exhausting at 40 pounds pressure, 337° F., thence to steam jet pumps, condensing at 26-inch hg. vacuum, 125° F.:

	B.t.u./lb.	Ttl. B.t.u.
4 2,800 lbs.	1,361	3,800,000
4a for power	197	575,000
4b to pumps	1,071	3,000,000
4c condensate	93	225,000

5. Hot well:

	Lbs. steam	B.t.u.
1c	30,945	2,900,000
4c	2,800	225,000
5a	33,745	3,125,000

$$\frac{3{,}125{,}000}{33{,}745} = 93° \text{ F. temp. rise; } 125° \text{ F.}$$

6. Steam jet pumps:

	Lbs. steam	B.t.u.
4b	2,800	3,000,000

7. Surface condensers:

	Lbs. steam	B.t.u.
1b	30,945	26,500,000

Circulating water, specific gravity 1.0, enters at 80° F. and leaves at 90° F., 10° F. temperature rise; weight of water 8.328 lbs./gal.

$$\frac{26{,}500{,}000 \text{ B.t.u.}}{10° \text{ F.} \times 8.328} = 3{,}200 \text{ gallons per hour}$$

8. Turbo-generators:

	Lbs. steam	B.t.u.
1a	30,945	12,700,000
2a	2,700	250,000
3a	2,800	575,000
4a	2,800	575,000
8a	39,245	14,100,000

9. Open feed-water heater:

	Lbs. water	B.t.u.
5a	33,745	3,125,000
2c	2,700	900,000
3c	2,800	550,000
9a	39,245	4,575,000

$$\frac{4{,}575{,}000}{39{,}245} = 120° \text{ F. temp. rise; } 152° \text{ F.}$$

10. Evaporator:

	Lbs. steam	B.t.u.
3b	2,800	2,675,000

Raw water is distilled for the plant. The amount required for makeup passes to the open feed-water heater, and the excess would be stored in a tank. Periodic blow-down removes sediment and salts. Evaporation of raw water is close to atmospheric pressure, 214° F. from 80° F.

	B.t.u./lb.
Sensible heat	134
Latent heat	969
Total heat	1,103

There would be evaporated:

$$\frac{2{,}675{,}000 \text{ B.t.u.}}{1{,}103 \text{ B.t.u.}} = 2{,}400 \text{ lbs. water per hour}$$

which would be divided as follows:

	Lbs.	Gals.
Makeup water and storage	2,000	240
Waste in blow-down	400	48

11. Heat exchanger (closed feed-water heater):

	Lbs. steam	B.t.u.
2b		2,550,000
9a	39,245	4,575,000
11a	39,245	7,125,000

$$\frac{7{,}125{,}000}{39{,}245} = 182° \text{ F. temp. rise; } 214° \text{ F.}$$

13. Steam generator (boiler):

	B.t.u./lb.	B.t.u.
Total steam, 39,245 lbs	1,361	53,400,000
11a Heat recovered, deduct		7,125,000
13a Net heat output		46,275,000

14. Steam cycle efficiency:

$$\frac{8a \quad 14{,}100{,}000 \text{ B.t.u.} \times 100}{13a \quad 46{,}175{,}000 \text{ B.t.u.}} = 30.5 \text{ per cent.}$$

15. Heat balance:

	B.t.u./hr.	B.t.u.
13a Heat generated	46,275,000	
8a For power		14,100,000
1b To condenser		26,500,000
3b To evaporator		2,675,000
4b To pumps (jet)		3,000,000
Total		46,275,000

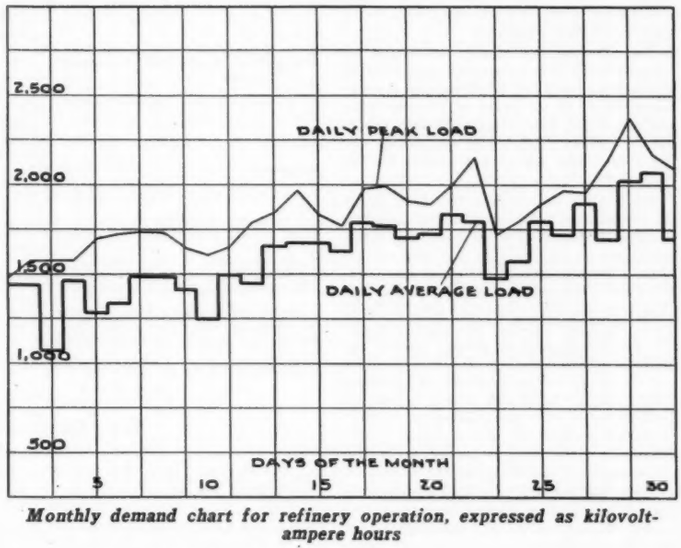
In the heat balance no consideration is given to the heat losses from piping to the air, etc. These losses are appreciable, but proper allowance will be made later in the discussion of the heat input to the steam generator (furnace).

Steam Generators

The steam generators consist of furnaces and boilers, fired by refinery gases, heavy oils, lump or powdered coal or coke. Care in the design and construction of boiler and furnace assures a basic efficiency, but for the actual or resulting efficiency as measured by the ratio of power delivered from the prime mover to the power input to the steam generator, this is determined by the plant operator.

An approved type of steam generator should give an efficiency of 70 per cent.

	B.t.u./hr.
13a Steam demand	46,275,000
Piping losses, radiation	225,000
16a Total output demand	46,500,000



Monthly demand chart for refinery operation, expressed as kilovolt-ampere hours

At the expected efficiency rating, 70 per cent:

$$\frac{46{,}500{,}000 \times 100}{70} = 66{,}500{,}000 \text{ B.t.u./hr.}$$

or the heat input from fuel to the furnaces.

Overall Plant Efficiency

The ratio of power delivered to the switchboard, or kilovolt ampere hours converted to heat units, and the power input to the furnace, or fuel burned converted to heat units, as follows:

$$8a \quad \frac{14{,}100 \times 100}{66{,}500{,}000} = 21.2 \text{ per cent.}$$

Evaporation and Corrosion Are Practically Eliminated

(Continued from Page 13)

action practically no portion of the crude oil or the products of crude oil that may be handled in the Wiggins Vapor Gathering Steel Balloon system is lost.

Corrosion Reduced

It is still very early in the life of the plant at Big Lake to make any decision as to the effect of this system upon the corrosion of the decks and sides of the steel tanks. This crude oil contains an appreciable quantity of sulphur and the gas accompanying it runs high in hydrogen sulphide contents.

Corrosion of metal tanks, pipe lines and other iron parts coming in contact with this H_2S gas has been very rapid. To date in the steel tanks and in the steel balloon handling this same type of crude oil and gas no effect of corrosion has been noted. It is stated that the mill scale still remains upon the inner side of the steel sheets used in constructing the breather decks.

In the steel balloon the bottom has been painted with a good grade of red lead paint. This was brushed on, but to cover the under side of the deck a rather unique process was devised.

It was difficult to erect scaffolding inside of this steel balloon to reach the under side of the deck. It was also necessary to distend the top and bottom with air under pressure and then close the vent and maintain this pressure so that the men would have space in which to work.

Working in an atmosphere of slightly compressed air with a spray gun delivering paint to the underside of the deck was out of the question. It was then decided to spray the under side of the deck with "curve" grease. This is the heavy grease smeared on street car line rails primarily to reduce noise and also to reduce friction of wheels against rail. Experience with other equipment in this field has proved its value to retard corrosion.

This thick grease was placed on the under side of a deck 14 feet above the workmen and in a vessel where scaffolding could not be erected by heating the grease outside the tank. The hot grease was delivered into the tank through pipes entering through flanged connections that did not permit of leakage of the compressed air needed to distend the deck and bottom.

As this hot grease hit the cooler surface of the steel plates it quickly congealed and stayed there without spray or splatter and with no ill effect upon the men within the tank. By using handles on the spray guns it was possible for the men to reach up to near the underside of the deck and it is understood that this permitted the forcing of this hot grease into the space between sheet laps, an area usually first to corrode because it is so hard to cover it with any form of coating or to exclude moisture.

The steel balloon has been examined once since this paint and grease job has been completed and no evidence of corrosion noted. It will be examined again in about six months and this examination repeated at intervals throughout the life of the system.

As the interior of the steel balloon is pitch dark it was necessary to provide an electric light system during the period of coating the inside. This was done very satisfactorily by passing the light wires through packers in holes in the tank shell. The men were also provided with flashlights for emergency in case the main lighting system failed for any reason.

Results Satisfactory

This method of handling the natural products of evaporation of crude oils or the products of crude oil is giving excellent results and additional systems are contemplated for handling bulk gasoline at city filling stations or at the refineries. Outage at these bulk stations is known to be high. If a good percentage of the present loss can be eliminated the system will pay for itself in a short time and the customer will actually receive a higher grade of gasoline in his automobile.

The results so far demonstrate that this process of handling crude oil saves volume, gravity and volatility of the fluid handled. These are all important features of either crude oil or gasoline its principal product. Just because it has been customary to accept the so-called "weathering loss" in the past is no excuse for continuing to dissipate millions of gallons of light fractions of oil every year in the future. The use of the vapor gathering system is a conservation measure.

For pipe line gathering systems and trunk lines it has proven its worth by the tests so far conducted at Reagan County tank farm and it is probable that additional units will be installed shortly at other points along this pipe line. The future developments will be followed with much interest by all branches of the petroleum industry.

Five Operations Common to Rotary Drilling Need

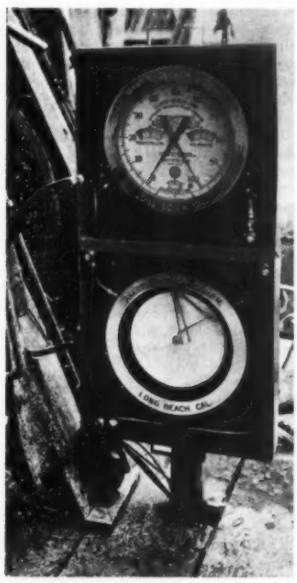
(Continued from Page 20)

vators and registered 12 points on the indicator.

Column six is the difference between gross and net weight as registered on the indicator. The dead weight represents the length of the pipe times 26.2 pounds per foot of length, calculated by slide rule. To secure the calculated dead weight in 11-pound mud the following equation has been used:

Specific gravity of steel is to the specific gravity of the mud as the weight of the casing is to "x."

Steel has a specific gravity of 7.85 and 11-pound mud 1.32. This may be



Martin-Decker Quintuplex drilling control instrument at Dominguez Hill, Calif.

reduced to a decimal, 6.53/7.85 or .8325 and the calculated weight of the pipe in air multiplied by this decimal and the weight in the 11-pound mud is obtained. However, it is doubtful if the column of mud weighed 11 pounds throughout the column, also the operators filled the first 8,500 feet of casing into the hole with mud to equalize mud pressures. Therefore the steel displaces only its equivalent net cubic contents of mud down to 8,500 feet and above that point mud equal to the full cross section of the pipe was displaced. This creates buoyancy or it is in effect that force exerted by a liquid that is equal to the weight of the displaced liquid. Or "a floating body displaces its own weight of the liquid in which it floats."

These conditions of weight of mud and displacement of the entire body of mud in the upper part of the hole, while the lower part of the pipe was full of mud, complicates all calculations.

In running this string of pipe at the Denver Producing & Refining Co.'s No. 1 A-dah-Noe well the lower end of the pipe rested upon an offset in the hole at about 7,280 feet from the surface. This point was passed by lifting the string of casing and hanging it on the spiders until the casing lines were wound up enough to impart a rotary motion to the string of casing when it was freed from the spiders and again lowered. As the casing shoe rotated upon the ledge in the hole it slid off into the hole below and the casing then went in the balance of the hole without trouble.

It was noted that above this point the casing was free, that is the weight indicator reading while running and on pick up was the same. Below the 7,170-foot level, indicated on the table by the dividing line, it will be noted that the running and pickup readings are not the same. The indicator registered more points on the pickup indicating friction in the hole between pipe and walls of the hole, probably increased by the binding action where the string passed through the offset place encountered at approximately 7,280 feet, described above. This fact may largely account for the variations between columns showing net load of pipe and calculated dead weight of pipe in air.

New Combined Instrument

The accompanying illustration shows a new recording instrument developed by Martin-Decker Corp., Long Beach, Calif., and known as their Quintuplex Oil Well Drilling Control Indicator. As the name implies this instrument is in reality five separate instruments combined and mounted upon one board where it is in plain sight of the driller at all times.

In the lower panel is located a recording chart so that the daily performance on the rig may be studied in the engineer's office and a permanent record made of each hole drilled. Such charts will prove of much value as they are accumulated and analyzed.

The idea of developing these five instruments in this form was conceived by the study of drilling conditions in a great many fields in all parts of the world by engineers for the Martin-Decker corporation and by suggestions offered by the users of other instruments made by the company.

Much time and money has been spent in perfecting this Quintuplex Drilling Control Indicator and with several years of experience in building the well known Martin-Decker weight indicator the manufacturers are well equipped to bring out this new device. They realize perhaps better than anyone else the extreme needs for exact information placed before the driller at all times and have made a special study of each phase of drilling operations so that the proper scope of performance will be indicated without distortion and at the same time the permanent records will be made upon the chart provided for this purpose.

With the industry actively engaged in the exploration of deeper formations in search of pools of oil the introduction of the Martin-Decker Quintuplex Oil Well Drilling Indicator to the industry at this time is both timely and opportune and it should find favor immediately, not only for the deep holes but for the normal drilling activities in proven territory.

Mid-Continent May Revise Capitalization Figures

Pointing out that while 1933 net income of Mid-Continent Petroleum Corp. was $3,353,500, charges for depreciation, depletion, leaseholds abandoned and surrendered amounted to $5,119,938, Jacob France, president, states it is desirable to revalue these assets to present-day values. By such a revaluation the annual charges for depreciation, depletion and other capital extinguishments will be reduced to a more reasonable amount, Mr. France says. Directors have authorized such a revaluation, he says.

Stockholders at the annual meeting May 2 will vote on reduction in par value of the 1,857,912 shares of capital stock to $10 from no par. This will reduce the annual franchise tax in Delaware and the Federal stock transfer tax. The $36,693,182 difference between $55,272,302 at which the shares as at present carried and $18,579,120, the new amount as result of par change, will be transferred to capital surplus account, against which will be charged reduction in asset values.

Mr. France states that operations in the first six months of the year resulted in a net loss of $2,703,466 and that in the last six months as a result of improved conditions the company had a profit of $937,028. Inventory of refined and crude oil is carried on the balance sheet at more than $1,175,000 under market value.

Wildcat Operations in Oklahoma

(Continued from Page 68)

19-11-1 ..... T.D. 6,079 ft.; chemicalized in Hunton lime; flowed 81 bbls. in 24 hrs.

OSAGE COUNTY

Peters Pet. Co. and Norbia Oil Co.'s No. 1, SW cor. Sec. 15-25-5 ..... S.D. 300 ft.
Empire O. & R. Co.'s No. 1, SE NE Sec. 3-25-3 ..... Drlg. 1,710 ft.

PAWNEE COUNTY

Geo. Thomas' No. 1 School Land, SW cor. Sec. 13-20-5.. Drlg. 1,465 ft.

PITTSBURG COUNTY

Arkhoma's No. 1 Cummings, NW NE SE Sec. 6-4-12... Fishing 515 ft.
W. E. Halley's No. 1 Drew, NW SW Sec. 21-3-14w ..... Drlg. 260 ft.
Mid-Western Oil & Gas Co.'s No. 1 Shelton, CSL SE NW Sec. 7-7-18 ..... Drlg. 2,306 ft.
Moffett & Hall's No. 1 Jones, C NE NW Sec. 14-8-14 .... Lost tools; T.D. 3,200 ft.; S.D.
C. L. Carlock's No. 1 Chunn, SE NW Sec. 29-4-14 ..... Moving in tools.

PONTOTOC COUNTY

E. M. Blanchard's No. 1 Crabtree, NE SE NE Sec. 27-2-6.. Drlg. 1,650 ft.
Emanuel, Rudman & Hatcher's No. 1 Mayer, C SW SE NW Sec. 7-3-8 ..... Drlg. 260 ft.
Delaney et al's No. 1 Dawes-Hardin, SE NW Sec. 30-2-7.. Drlg. 1,250 ft.

POTTAWATOMIE COUNTY

Texas Pacific's No. 1 Franklin, SW NW SW Sec. 10-9-4. Hunton lime 4,437-49 ft.; R.U.S.T.
W. E. Witt et al's No. 1 Atwater-Fundis, NE NW NE Sec. 33-8-3 ..... Cellar.

SEMINOLE COUNTY

Carter Oil Co. et al's No. 1 Jarvis, C E½ NE SW Sec. 18-10-6 ..... Wilcox 4,593-96 ft.; swbd. 25 bbls. per hr., 2% b.s. and wtr.
Harman Oil Co.'s No. 1 Bowlegs, SE NE SW Sec. 1-7-7 ..... Drlg. 1,655 ft.
Flemlee et al's No. 1 Bowlegs, SE NE SW Sec. 1-7-7.... S.D. 1,260 ft.
Tate & Starbuck's No. 1 Heard, SE NW Sec. 9-6-7..... Machine.

Southern Oklahoma

ATOKA COUNTY

J. D. Boukan's No. 1 Howard, NW SW NW Sec. 20-2s-10e. Drlg. 1,135 ft.
Brookshire et al's No. 1 Rowland, NW NE NE Sec. 18-3s-10e ..... T.D. 3,443 ft.; fishing.

COMANCHE COUNTY

F. F. Stevens' No. 1 Green, SE SW Sec. 11-1n-13w..... Drlg. 460 ft.
Stores et al's No. 1-A Crutcher, C NE Sec. 11-1n-12w.. Drlg. 200 ft.

GARVIN COUNTY

National Prod. Co.'s No. 1 Littrell, NE cor. Sec. 31-2n-3w. S.D. 299 ft.

McINTOSH COUNTY

Malernee et al's No. 1, NW SE Sec. 36-12-13..... Drlg. 1,685 ft.

MARSHALL COUNTY

Paul Robb's No. 1 Vittetoe, C NE SE Sec. 11-5s-4e..... Drlg. 4,105 ft.

MURRAY COUNTY

Gilcrease Oil Co.'s No. 1 Brown, SW cor. Sec. 26-1n-2e.. Drlg. 400 ft.
T. E. Revell et al's No. 1 Wolfe, NE cor. Sec. 18-1-2.... Drlg. 2,200 ft.

PUSHMATAHA COUNTY

J. V. Scrivener et al's No. 1 Swink, C NE SE Sec. 29-6s-20e ..... Setting csg. 410 ft.
Whitehead et al's No. 1 Messer, SE SW SW Sec. 35-2s-18e. T.D. 2,405 ft.; S.D.

STEPHENS COUNTY

J. W. Madison's No. 1 Tussey, SW SE NW Sec. 24-1n-4w.. S.D. 3,210 ft.
Geo. Pace et al's No. 1 Siever, SE SW Sec. 4-1n-7w ..... Set surface pipe.
MacMo Oil Co.'s No. 1 Butler, SW NW SE Sec. 36-2s-7w.. S.D. 20 ft.

TILLMAN COUNTY

J. H. Everett's No. 1 Crane, SW cor. Sec. 15-3s-14w ..... Rig.

Gulf Coast Fields and Wildcats

(Continued from Page 65)

Sun Oil Co.'s No. 21 J. Wilburn, Wm. Hodges Sur., 50 ft. N of No. 20 ..... Top salt 1,396 ft.; base salt 2,914 ft.; T.D. 3,002 ft. in sand; tried to blow out.

Texas Gulf Prod. Co.'s No. 2 Barber, 514 ft. W, 41 ft. S of NE cor. of lease, Henry Griffith League..... O.T.D. 4,309 ft.; cmtd. back to 3,067 ft.; milling at 2,720 ft.

Texas Gulf Prod. Co.'s No. 2 Fitzgerald, 300 ft. from W and 80 ft. from S line of lease ..... To work over; T.D. 5,258 ft.; cmtd. to 3,440 ft.; drlg. shale and lime 3,852 ft.

Texas Gulf Prod. Co.'s No. 12-B Kirby, Henry Griffith League, 80 ft. S of N line and direct offset of Texas Gulf's No. 2 J. M. Fitzgerald ..... Top salt 1,375 ft.; drlg. sand and shale showing oil 4,905 ft.; T.S. 4,883 ft.

Texas Gulf Prod. Co.'s No. 8-H Kirby, 333 ft. W of No. 6-H, 70 ft. N of S line, Henry Griffith League (W.O.) ..... T.D. 5,024 ft.; sidetracked at 3,179-5,022 ft.; shot drill pipe at 2,750 ft.; waiting orders.

Texas Gulf Prod. Co.'s No. 4 Wilburn, Wm. Hodges Sur., 330 ft. N of S line, 50 ft. W of E line ..... T.S. 4,235 ft.; T.D. 4,250 ft., sand; show oil.

Yount Lee Oil Co.'s No. 23 Chambers County, Wm. Bloodgood Sur., 116.9 ft. S of N line and 247 ft. W of E line ..... T.S. 1,449 ft.; coring sand 3,782 ft.

Yount Lee Oil Co.'s No. 24 Chambers County, 400 ft. W of No. 23 in line with No. 21 ..... Derrick.

Yount Lee Oil Co.'s No. 7 Phillips, offset Sun Oil Co.'s No. 18 Wilburn ..... T.D. 4,477 ft., sand showing oil; set 26 ft. 5 9/16-in. O.D. screen; comp. 160 bbls., ¼-in. choke.

Yount Lee Oil Co.'s No. 8 Phillips, Wm. Hodges Sur. .... Drlg. shale and lime 659 ft.

RABBS RIDGE—FORT BEND COUNTY

Humble O. & R. Co. and Gulf Prod. Co.'s No. 25-B Lockwood & Sharp, 2,882 ft. from E line and 376 ft. from N line of lease, J. Rabb Sur. ..... S.D.; T.D. 2,052 ft.
Humble O. & R. Co.'s No. 26-B Lockwood & Sharp, 1,153 ft. W of No. 25, J. Rabb Sur. ..... Drlg. shale 3,956 ft.
Humble O. & R. Co.'s No. 27-B Lockwood & Sharp, 1,153 ft. W of No. 26, J. Rabb Sur. ..... Location.
Naylor's No. 4 S. B. Gehr, 1,260 ft. from W line and 330 ft. from S line of lease in Samuel Kennedy Sur. ..... Drlg. 3,240 ft.

BIG CREEK—FORT BEND COUNTY

Porter et al's No. 2 Wheat ..... Set screen; making salt water and gas; waiting on orders.
Gulf Stream, Inc.'s No. 1 Ahlers ..... T.D. 2,741 ft.; set whipstock.

LONG POINT—FORT BEND COUNTY

Oleson et al's No. 1 McFarland ..... Cutting and pulling screen; T.D. 1,003 ft.

ORCHARD—FORT BEND COUNTY

Gulf Prod. Co.'s No. 39 Moore ..... Drlg. shale and lime 1,443 ft.

SUGARLAND—FORT BEND COUNTY

De Walt Oil Co.'s No. 1 Peterson ..... Top salt 4,512 ft.; T.D. 4,514 ft.; P.B. 3,300 ft.; S.D. 3,808 ft.

THOMPSON—FORT BEND COUNTY

Humble & Gulf's No. 26-B Lockwood & Sharp, J. Rabb Sur., 2,882 ft. E line, 376 ft. N line lease ..... Gumbo 2,009 ft.
H. M. Naylor's No. 4 S. B. Gehr (282 ac.), Samuel Kennedy Sur., 1,260 ft. from W line and 350 ft. from S line of lease ..... Gumbo 1,300 ft.

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 39 Cade, N. Fitzsimmons Sur., 1,000 ft. from W line, 580 ft. from S line of lease .... T.S. 5,414 T.D. 5,767 ft.; P.B. 5,220 ft.
Yount Lee Oil Co.'s No. 40 Cade, 430 ft. NW of No. 2-B, 360 ft. from E line of lease and in line with No. 39 and No. 2-B, Fitzsimmons Sur. ..... Derrick.

Yount Lee Oil Co.'s No. 4 Broussary & Orme, M. Dunman Sur., 129 ft. SW of No. 3 ..... Top salt 4,565 ft.; coring 5,019 ft.
Yount Lee Oil Co.'s No. 2-B Cade, 170 ft. from N line, 100 ft. from E line of 40-ac. lease, N. Fitzsimmons Sur. ..... T.D. 5,285 ft.; sand and shale showing oil; running tubing.
Yount Lee Oil Co.'s No. 2 Mathis, M. Dunman Sur., direct offset No. 1 Spencer ..... Drlg. lime 2,840 ft.
Yount Lee Oil Co.'s No. 21 Smith, M. Dunman Sur., 360 ft. from W line, 1,485 ft. from N line of lease .. T.S. 5,186 ft.; W.O.C. 5,216 ft.

ARRIOLA—HARDIN COUNTY

Republic-Houston's No. 2-X Arriola fee ..... T.D. 997 ft.; W.O.C.
Republic-Houston's No. 7 Arriola fee ..... D.S. test 3,410-20 ft. through ¼-in. choke, 4 fourbles oil; no pressure; T.D. 4,397 ft.; D.S. test 4,323-36 ft.; showed salt water.

BATSON—HARDIN COUNTY

Danciger O. & R. Co.'s No. 2 Hooks, W. Donoho Sur., 330 ft. E of CWL, Blk. 24 ..... T.S. 4,480 ft. (4,782 top); set screen 4,795 ft.; washing in.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 107 Jordit, 910 ft. from W line and 50 ft. from N line of lease, 150 ft. N of No. 103.. T.D. 610 ft.; comp. for small pumper.
Seismo Oil Co.'s No. 1 Casewell, 940 ft. S of NW cor. and 600 ft. from E line, B.B.B.&C. Sur. ..... T.D. 3,212 ft.; shut down.
Skinner Oil Co.'s No. 2 Sessler ..... Drlg. shale 420 ft.

SOUR LAKE—HARDIN COUNTY

Parr et al's No. 1 Benard, in W.C.R.R. Sur. No. 69 (west edge) ..... Top Dibollensis 6,885 ft.; T.S. showing oil 6,936 ft.; T.D. 6,994 ft.; set 7-in. at 6,886 ft.; drlg. plugs and preparing to bring in.
Steinberger Pet. Co.'s No. 1 Weiss, 150 ft. W of Parr No. 1 and 50 ft. out of SE cor. of Blk. 28, E. B. Williams Sur. ..... Location.

GOOSE CREEK—HARRIS COUNTY

Gulf Prod. Co.'s No. 13 St. Land Prod., 39 ft. from E line or 89.4 ft. W of Sun Oil Co.'s No. 1 McFarland, Wm. Scott Sur. No. 67 ..... Cored sand 4,528-36 ft.; cmtd. 7-in. csg. at 4,522 ft.; W.O.C.
Gulf Prod. Co.'s No. 23-A Wright, 50 ft. from N and W lines of NW cor. of Lot 8, A. A. Wright Subd., Wm. Scott Sur. No. 65 ..... Drlg. 2,800 ft.
Hoffner & Moore's No. 1 A. A. Wright, 50 ft. N and 50 ft. E of SW cor. of Blk. 7, Wm. Scott Sur., Abst. No. 65 ..... Coring 4,602 ft.
Humble O. & R. Co.'s No. 79 Simms-Smith, Wm. Scott Sur., 50 ft. from N line, 150 ft. from W line of most southerly NW cor. ..... T.D. 5,415 ft.; P.B. to 3,430 ft.; drlg. shale 3,803 ft.
L. H. Puckett's No. 1 Scott, Wm. Scott Low League, 35 ft. from E line and 45 ft. from S line of 2½-acre tract ..... Drlg. shale 3,705 ft.
J. Simmons' No. 1 Kerwin Mitchell, SE cor. of 6-acre tract ..... Derrick.

HUMBLE—HARRIS COUNTY

Texas Co.'s No. 47 Stevenson, J. B. Stevenson Sur., 859 ft. E. 457 ft. S of NW cor., Lot 1-A ..... Drlg. hard sand and lime rock 3,214 ft.

MYKAWA—HARRIS COUNTY

Framer O. & G. Corp.'s No. 2 Minnetex Subd., 193 ft. NE of SW cor. of lease, Minnetex Subd., Wm. Lovett Sur. ..... T.D. 4,830 ft.; set screen and washing in.

PIERCE JUNCTION—HARRIS COUNTY

Rio Bravo Oil Co.'s No. 24-A Settegast, J. Kopman Sur. No. 44, 1,000 ft. S, 200 ft. W of NE cor. of "A" lease.. T.D. 4,298 ft.; cutting and pulling liner.
Rio Bravo Oil Co.'s No. 26-A Settegast, J. Kopman Sur. No. 44, 1,210 ft. N line, 750 ft. E line of "A" lease ..... T.D. 6,056 ft., sandy shale; temp. abnd.

TOMBALL—HARRIS COUNTY

Amerada & Stanolind's No. 1 F. Rudel, 500 ft. from N line and 163 ft. from W line of W 30 acres of 80-acre tract in J. House Sur. No. 34 ..... Drlg. oil sand 5,574 ft.
Humble O. & R. Co.'s No. 2 Emil Doege, C. Goodrich Sur., 300 ft. from E line, 466 ft. from S line of 90 acres ..... T.D. 5,576 ft.; W.O.C.
Humble O. & R. Co.'s No. 1 C. F. Hoffman, 1,900 ft. from S line and 466 ft. from E line of 123-acre tract, I.&G.N. Sur. No. 952 ..... Derrick.
Humble O. & R. Co.'s No. 2 C. F. Hoffman, 466 ft. E of most easterly W line and 466 ft. N of most northerly S line of 100-acre lease in J. House Sur.... Derrick.
Humble O. & R. Co.'s No. 2 Mary Jane Keuhn, 466 ft. from N line and 466 ft. from E line in W. Usner Sur. ..... Drlg. shale 5,553 ft.
Humble O. & R. Co.'s No. 2-A J. F. W. Kobs, 1,062 f.. from N and 623 ft. from W line of lease in J. M. Hooper Sur. ..... Drlg. shale 950 ft.
Humble O. & R. Co.'s No. 2 J. W. H. Martens, Wm. Hurd Sur. No. 377 ..... Drlg. shale 4,977 ft.
Humble O. & R. Co.'s No. 1-C Hope Quilter, 660 ft. from N line and 320 ft. from W line of 340-ac. tract in A. Senchall Sur. ..... Drlg. shale 5,531 ft.
Humble O. & R. Co.'s No. 2 Reid, 466 ft. N of S line and 466 ft. W of E line of lease in Goodrich Sur. No. A-305 ..... Drlg. shale 2,889 ft.
Humble & Magnolia's No. 2 Rudel-Oster, 150 ft. S of Amerada & Stanolind's No. 2 Fletcher, half way between E and W lines of 50-acre tract in J. House Sur. No. 34 ..... Location.
Humble & Magnolia's No. 1 H. Theak, 200 ft. from E line and 2,500 ft. from S line of 180-acre tract in Wm. Hurd Sur. ..... Location.
Shell Pet. Co.'s No. 1 W. W. Baker, 440 ft. S of C of N line of lease, J. House Sur. No. 34 ..... Location.
Shell Pet. Co.'s No. 2 W. W. Baker, 630 ft. S of No. 1 and 466 ft. from W line of lease, J. House Sur. No. 34 ..... Location.
Skelly Oil Co.'s No. 1 Schultz, J. H. Edwards Sur., 466 ft. from S line, 404 ft. from E and W lines .... Rigging up.
Texas Co.'s No. 1 Wm. Hirsch, 163 ft. E and 466 ft. N of most westerly SW cor. of lease, J. House Sur. ... Soft oil sand 5,604-12 ft.; T.D. 5,612 ft.; comp. 300 bbls. 21 hrs. through 12/64-in. choke; T.P. 600 lbs., C.P. 600 lbs.
Texas Co.'s No. 1 Albert Ziegler, 517 ft. E and 155 ft. S of NW cor. of Wm. Hurd Sur., elev. 189 ft. ..... Drlg. shale 5,459 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Co.'s No. 20 Esperson, C. W. Fisher Sur., 471 ft. W line, 510 ft. N of No. 5 Esperson in "A" lease ..... To work over.
General Crude Oil Co.'s No. 7 Davis (W.O.). Duncan Sur.. T.D. 4,556 ft.; comp. 96 bbls. through ¾-in. choke.

HULL—LIBERTY COUNTY

Bashara Oil Co.'s No. 1 Hannah, Jessie De Vore Sur., 125 ft. E of Texas Co.'s No. 1 Hannah, 50 ft. N of S line ..... T.D. 3,733 ft.; W.O.C.
W. B. Flynn's No. 14 Abel, 90 ft. from N line and 150 ft. from E line of 10-acre tract in J. Devore Sur..... Standing 605 ft., shale.
Gulf Prod. Co.'s No. 97 Phoenix, 80 ft. N of No. 94 and 50 ft. from W line of lease ..... Drlg. shale and boulders 3,605 ft.
Gulf Prod. Co.'s No. 98 Phoenix, 1,123 ft. E along N line of Mirimar's 25-acre tract from NW cor. and 98 ft. N at right angles ..... Drlg. 900 ft.
Gulf Prod. Co.'s No. 99 Phoenix, 100 ft. N and W of NE cor. of Mirimar's 25-acre tract ..... Location.
Houston Oil Co.'s No. 7 Orgain, 100 ft. W of No. 5 and 200 ft. S of No. 1 ..... Drlg. shale 4,358 ft.
Humble Oil & Ref. Co.'s No. 35 Guedry ..... T.D. 4,900 ft., shale; washing.
Humble Oil & Ref. Co.'s No. 37 Guedry, 50 ft. from S line and 50 ft. from W line of 43-acre tract ..... Drlg. 5,029 ft., shale.
Humble Oil & Ref. Co.'s No. 38 Guedry, 444 ft. from S and 50 ft. from E line of lease in J. Devore Sur. .... Rigging up.
Republic Prod. Co.'s No. 104 Dolbear ..... P.B. 1,957 ft.; pumping 175 bbls.; comp.
Republic Prod. Co.'s No. 151 Dolbear, J. Devore Sur., 200 ft. E of No. 35 ..... Drlg. shale 3,728 ft.
Sun Oil Co.'s No. 4-A Carr, 196 ft. due W of No. 3, 50 ft. from N line of lease ..... Rigging up.
Sun Oil Co.'s No. 5-A Carr, 50 ft. from N line and 50 ft. from W line of most northerly NW cor. of lease, J. Devore Sur. ..... T.D. 4,941 ft.; sand 4,910-36 ft.; comp. 41 bbls. hour through ½-in. choke.
Texas Co.'s No. 5 Barrow fee, 533 ft. S and 150 ft. W of NE cor. of lease in J. Devore Sur. ..... T.D. 4,955 ft.; 7-in. csg. at 4,281 ft.; preparing to start up.
Yount Lee Oil Co.'s No. 10 Hooks fee, Jesse DeVore Sur., 50 ft. out of SE cor. lease ..... W.O.C. 4,224 ft.

LIBERTY COUNTY

Mrs. I. M. Lemon Oil Co.'s No. 1 Richardson, 120 ft. E of Gulf & Humble's No. 1 Carter, in M. G. White Sur. ..... T.D. 3,882 ft.; rerun tubing; standing.

CONROE—MONTGOMERY COUNTY

Adeltex Oil Co.'s No. 2 Llewelen, R. G. Hamlett Sur., 466 ft. N, 159 ft. W. SE cor. lease ..... Drlg. shale 5,218 ft.
Alpha Pet. Co.'s No. 3 Stephens ..... T.D. 5,119 ft.; setting 7-in. csg.
Gulf Coast Drlg. & Prod. Co.'s No. 4 Bertrand ..... Drlg. 3,162 ft., shale.
Gulf Coast Drlg. & Prod. Co.'s No. 21 Keystone Mills, 755 ft. W of No. 20, A. Steele Sur. ..... T.D. 5,071 ft.; comp. 500 bbls., ½-in. choke.
Gulf Coast Drlg. & Prod. Co.'s No. 28 Keystone Mills, A. Steele Sur., 723 ft. W of No. 13 ..... T.D. 5,153 ft.; abnd.
Harrison & Abercrombie's No. 6 Alexander, John McHorse Sur., 466 ft. from W line and 300 ft. from S line ..... Drlg. shale 2,850 ft.
Houston-Tide Water Oil Co.'s No. 10 Cartwright, J. A. Davis Sur., 466 ft. from W and 1,263 ft. from S line of lease ..... Drlg. shale 2,262 ft.
Humble O. & R. Co.'s No. 3 American Natl. Bank, 751 ft. from N and 308 ft. from E lines of lease, W. Strickland Sur. ..... Drlg. shale 2,861 ft.
Humble O. & R. Co.'s No. 1-E Cartwright, E offset to Brown & Wheeler's No. 1 Gilbert, J. A. Davis Sur... Trying to bring in, 5,164 ft.
Humble O. & R. Co.'s No. 11 Emory, W.C.R.R. Sur. No. 13 ..... Drlg. shale 4,572 ft.
Humble Oil & Ref. Co.'s No. 5 Griffin, Wilson Strickland Sur., W offset No. 1-B Young ..... T.D. 5,110 ft.; comp. 76 bbls. hour through ½-in. choke.
Humble O. & R. Co.'s No. 21 Keystone Mills, A. Steel Sur. ..... T.D. 5,118 ft.; W.O.C.
Humble O. & R. Co.'s No. 30 Keystone Mills, A. Steel Sur. ..... T.D. 980 ft.; W.O.C.
Humble O. & R. Co.'s No. 31 Keystone Mills, A. Steel Sur.. T.D. 5,137 ft.; comp. 81 bbls. hour through ½-in. choke.
Humble Oil & Ref. Co.'s No. 40 Madeley, N offset to No. 4 Moorhead, R. House Sur. ..... Drlg. shale 5,020 ft.
Humble O. & R. Co.'s No. 41 Madeley, 330 ft. NW of No. 40, R. House Sur. ..... Drlg. shale 3,762 ft.
Humble O. & R. Co.'s No. 50 Moore, L. Smith Sur. ..... Drlg. shale 2,980 ft.
Humble Oil & Ref. Co.'s No. 67-A South Texas, S offset to Alpha's No. 2 South Texas, T. Slade Sur. .... T.D. 5,166 ft.; W.O.C.
Humble Oil & Ref. Co.'s No. 2-A Young, S offset to Tide Water Oil Co.'s No. 4 American Natl. Bank, W. Strickland Sur. ..... T.D. 5,104 ft.; W.O.C.
Strake Oil Co.'s No. 6 Keystone Mills ..... Drlg. shale 4,011 ft.
Sun Oil Co.'s No. 17 Keystone Mills, 438 ft. from N and 1,444 ft. W of No. 9, A Steel Sur. ..... T.D. 5,120 ft.; W.O.C.
Texas Co.'s No. 12 Moody ..... T.D. 5,111 ft.; preparing to work over.

PORT NECHES—ORANGE COUNTY

Texas Co.'s No. 2 Orange Natl. Bank, Jacob Beaumont Sur., 1,538 ft. W and 200 ft. S of NE cor. of lease .. Cored sand and shale, odor oil, 5,404-06 ft.
Texas Co.'s No. 2-B Polk, 695 ft. N, 150 ft. S of NE cor. of N. Jacob Beaumont Sur. ..... T.D. 5,997 ft.; 50 ft. cmt. plug from 3,050-3,100 ft.; W.O.C.

LIVINGSTON—POLK COUNTY

Gem Oil Co.'s No. 1 Shrove, 466 ft. from W line and 404 ft. from N line of lease ..... S.D. 1,565 ft.
Gist Oil Co.'s No. 1 Kingsbury County Holding Corp., A. Viesca Sur., 150 ft. N at R/A and 193 ft. E along S line of tract ..... T.D. 4,242 ft.; making 10 bbls. distillate hour.
H. B. Owenby's No. 1 Kimes, 330 ft. from N line and 330 ft. from E line of 25-acre lease in A. Viesca Sur. ..... Pits.
H. B. Owenby's No. 2 Kimes, 330 ft. from S and E lines of 35-acre tract, A. Viesca Sur. ..... Moving in.
H. B. Owenby's No. 1 O. L. Munson, 330 ft. from N line and 320 ft. W of E line of lease in A. Viesca Sur. ... T.D. 4,333 ft.; comp. 78 bbls. 5 hrs., ¼-in. choke, T.P. 425 lbs.
Smith & McDaniel's No. 1 R. H. Jones, 380 ft. from N line and 500 ft. from E line of lease, A. Viesca Sur. (S offset to Humble's No. 2 Smith) ..... Moving in.
J. L. Werby's No. 1 L. G. Howard, 466 ft. from SE line and 466 ft. from SW line of 70-acre tract, A. Viesca Sur. ..... Drlg. shale 1,565 ft.

GRETA—REFUGIO COUNTY

Blanco Oil Co.'s No. 2-C J. J. O'Brien, N. S. Crunk Sur., 466 ft. from E line and 510 ft. from S line of 50-acre tract ..... T.D. 4,397 ft.; 7-in. csg. at 4,372 ft.; comp. 95 bbls., ½-in. choke, T.P. 900 lbs., C.P. 1,425 lbs.
D. & D. Oil Co.'s No. 1 Fannie Heard, 330 ft. from N and E lines of Lot No. 14 ..... 4-min. D.S. test 2,427-70 ft.; tested gas and salt water; coring 3,800 ft.
Dash & Blanco's No. 1 J. M. O'Brien, Winfield Sur., 466 ft. from S and E lines of 300-acre tract ..... T.D. 4,396 ft.; 7-in. csg at 4,386 ft.; testing.
Floboots Oil Corp.'s No. 1 M. C. Bauer, 330 ft. N line, 1,724 ft. from W line, J. M. Ximines Sur. ..... P.B. 3,486 ft.; W.O.C.; T.D. 6,504 ft.
Floboots Oil Corp.'s No. 3-A J. F. Heard, Ximines Sur., 466 ft. from N line and 1,274 ft. from W line of 150-acre tract, 808 ft. E of No. 1 ..... Coring 5,386 .tf
Floboots' No. 3-C J. M. O'Brien, 466 ft. from S and W lines of Blk. 10, Smith Subd., E. H. Winfield Sur. .. Drlg. 3,815 ft.
Floboots Oil Co.'s No. 4-C J. M. O'Brien, 503 ft. from E line and 466 ft. from S line of Blk. 8, Peoples Sur... Derrick.
Hewitt & Dougherty's No. 3 Lambert, E. W. Harper Sur... Drlg. 3,745 ft.
Hewitt & Dougherty's No. 4 Lambert, 469 ft. from N line and 507 ft. from W line of Blk. 5, Hardwick Sur. ..... Moving in.
Humble O. & R. Co.'s No. 2 Fannie Heard, 466 ft. S of most southerly N line and 303 ft. E of most westerly line in Crunk Sur. ..... Drlg. shale 5,606 ft.
Humble O. & R. Co.'s No. 3 Fannie Heard, 825 ft. E of most northerly NW cor. of lease and 466 ft. S of most northerly line at R/A, N. S. Crunk Sur. .. Preparing to drill cmt. plugs 4,385 ft.

Humble O. & R. Co.'s No. 4 J. F. B. Heard, 466 ft. from W line of 500-acre lease and 133 ft. NW of R.R. at right angles, or 2,750 ft. from W line and 3,710 ft. from S line of Peoples Sur. ..... Drlg. shale 410 ft.

Humble O. & R. Co.'s No. 4-C O'Brien, 697 ft. from N and 1,169 ft. from E lines of 100-acre tract, or 840 ft. E of No. 3-C in Ximines Sur. ..... Drlg. shale 4,210 ft.

Humble O. & R. Co.'s No. 2 Welder, 1,322 ft. from E line and 466 ft. from S line of 752-acre tract in the Winfield Sur. ..... Drlg. lime 4,721 ft.

Nesral Oil Co.'s No. 1 V. E. Heard, 466 ft. N line, 266 ft. W line, M. J. Ximines Sur. ..... T.D. 6,015 ft.; shale; cored oil sand 6,003-13 ft.; 4½-in. csg. at 6,002 ft.; swabbing water.

Stanolind Oil & Gas Co.'s No. 3-A J. M. O'Brien, Peoples Sur., begin at NE cor. of "A" lease, thence W along N line 1,569 ft., thence S at right angles 466 ft., S offset to No. 4-B ..... S.D. 4,384 ft.

Stanolind Oil & Gas Co.'s No. 3-B J. M. O'Brien, Winfield Sur. ..... Drlg. 262 ft.

Stanolind Oil & Gas Co.'s No. 5-B J. M. O'Brien, S offset to No. 1 Welder ..... W.O.C. 4,385 ft.

Stanolind & Atlantic's No. 2-G J. M. O'Brien, 933 ft. N of No. 1, 315 ft. from E line of 400-acre tract in Winfield Sur. ..... W.O.C. 1,107 ft.

Stanolind Oil & Gas Co.'s No. 3 O'Connor, 1,620 ft. from S line and 466 ft. from W line of 100-acre lease in Crunk Sur. ..... Location.

Stanolind Oil & Gas Co.'s No. 4 O'Connor, 466 ft. from W and S lines of 100-acre lease in Crunk Sur. ..... Location.

Texas Co.'s No. 1 James Welder, 2,700 ft. E and 466 ft. N of NW cor. of Continental's 200-acre Welder lease, John T. McGrew Sur. (N of Greta Pool) ..... Rigging up.

United Prod. Co.'s No. 15 Fox, 830 ft. W of No. 2-A in Wm. Hews and L. Brown Sur. ..... Drlg. sandy shale 630 ft.

United Prod. Co.'s No. 13 Fox, 933 ft. S of No. 12 and 466 ft. from E line of lease in Hews Sur. ..... Drlg. 2,852 ft.

United Prod. Co.'s No. 14 W. J. Fox et al, 466 ft. from N line and 1,060 ft. W of No. 11 on 848-acre tract in Wm. Hews and L. Brown Sur. ..... Derrick.

United Production Co.'s No. 7 Lambert, center of N½ of Blk. 4, M. F. Lambert League ..... T.D. 4,390 ft.; W.O.C.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 3 Schermer, N. Clay Sur., 330 ft. NW, 330 ft. SW line of lease ..... Drlg. 3,470 ft.

Sun Oil Co.'s No. 4 Schlettman ..... Hard shale 992 ft.

SOUTH LOUISIANA FIELDS

BLACK BAYOU—CAMERON PARISH

Shell Pet. Corp.'s No. 18 Watkins, 2,515 ft. S, 650 ft. W of NE cor. Sec. 18-12s-12w ..... T.D. 4,187 ft.; oil sand 4,174-87 ft.; to set screen.

CAMERON MEADOWS—CAMERON PARISH

Burton-Sutton Oil Co.'s No. 3 School Land, 155 ft. N and 2,974 ft. E of SW cor. of Sec. 16-14s-13w ..... T.D. 3,580 ft.; to deepen.

Humble O. & R. Co.'s No. 6 Cameron Meadows, 1,866 ft. W and 150 ft. N of SE cor. of Sec. 16-14s-13w ... T.D. 3,615 ft.; fishing.

Humble O. & R. Co.'s No. 7 Cameron Meadows, 2,495 ft. W and 155 ft. S of NE cor. Sec. 16-14s-13w..... Drlg. sand 2,701 ft.

Humble O. & R. Co.'s No. 1-B Cameron Meadows, 350 ft. W and 2,640 ft. S of NE cor. of Sec. 24-14s-14w... Bldg. foundation.

EDGERLY—CALCASIEU PARISH

Emerson's No. 1 Bright Penn, 50 ft. S of Gulf's old No. 43 Bright Penn in Sec. 28-9s-11w ..... Rigging up.

Rex. Pet. Co.'s No. 13 Hunter, 466 ft. N, 90 ft. E of SW cor. of SE ¼ ..... T.D. 4,050 ft.; preparing to bail.

Union Sulphur Co.'s No. 1 Hunter, 210 ft. E, 1,260 ft. N of SW cor. SE Sec. 21-9s-11w ..... T.D. 5,458 ft.; abnd.

Union Sulphur Co.'s No. 1 La Prairie Narrone, 1,061 ft. N, 250 ft. W of SW cor. SW Sec. 21-9s-11w ..... Drlg. hard shale and lime 4,749 ft.

CHOCTAW—IBERVILLE PARISH

Standard Oil Co. of La.'s No. 4 Gay, 2,350 ft. S, 175 ft. E of NE cor. Sec. 52-9s-11e ..... T.D. 2,904 ft.; W.O.C.

GUEYDAN—VERMILLION PARISH

Pure Oil Co.'s No. 6 Alliance Trust, 667 ft. E, 1,787 ft. S line of lease, Sec. 34-11s-1w ..... T.D. 5,680 ft.; S.D. brittle shale, streaks of sand.

HACKBERRY—CAMERON PARISH

Gulf Ref. Co.'s No. 13-A Irwin ..... T.D. 7,265 ft.; 8-min. D.S. test showed 4 thrib les S.W. and little oil; to deepen.

Red Kelly Oil Co.'s No. 1 Duhon, 200 ft. S, 500 ft. E, NW cor. Sec. 27-12s-10w ..... T.D. 3,361 ft.; flowed 1,500 bbls. daily; stopped flowing; set tubing and screen.

Texas Co.'s No. 10-B State, 1,000 ft. E, 200 ft. N of NE cor. Sec. 13-12s-10w ..... T.D. 7,287 ft.; preparing to run screen.

Union Sulphur Co.'s No. 1 Barbee est., 1,720 ft. N line, 320 ft. E of SW cor. Sec. 12-12s-10w ..... T.D. 7,986 ft.; fishing stuck drill stem.

Union Sulphur Co.'s No. 7 Humble lease, 1,010 ft. N, 661 ft. E of SW cor. Sec. 12-12s-10w ..... T.D. 6,142 ft.; standing.

Yount Lee Oil Co.'s No. 11 Gulf Land, Sec. 14-12s-10w .. Coring sand 5,473 ft.

Yount Lee Oil Co.'s No. 14 Gulf Land ..... Drlg. hard sand 3,117 ft.

IOWA—CALCASIEU AND JEFF DAVIS PARISHES

Barnsdall Oil Co.'s No. 1 Caffal, 330 ft. N and E of SW cor. of lease ..... Digging pits.

Barnsdall Oil Co.'s No. 4 Fontenot, 330 ft. N, 330 ft. W out of SE cor. 80-ac. lease, Sec. 7-9s-6w ..... 50 bbls. 1 hr., 23/64-in. choke; est. good for 1,500 bbls. day; T.D. 6,941 ft.; comp.

Magnolia Pet. Co.'s No. 2 James Bowman, 660 ft. W, 330 ft. N of SE cor. NE SW Sec. 12-9s-7w ..... T.D. 7,125 ft.; drill pipe stuck.

Magnolia Pet. Co.'s No. 6 Walt ..... Drlg. 540 ft.

Magnolia Pet. Co.'s No. 7 Walt ..... Shut down.

Shell Pet. Corp.'s No. 6 Fontenot, Sec. 7-9s-6w, 990 ft. N, 330 ft. W of SE cor. of lease ..... T.D. 6,939 ft.; 26-ft. pay; comp. 1,534 bbls. through 23/64-in. choke.

Shell Pet. Corp.'s No. 7 A. D. Fontenot, 990 ft. N and 330 ft. W of SE cor. of lease in Sec. 7-9s-6w ..... Set 7-in. csg. 6,925 ft.

Shell Pet. Corp.'s No. 7 Heyd, 660 ft. out of NW cor. of lease, Sec. 13-9s-7w ..... Drlg. sandy shale 4,377 ft.

Shell Pet. Corp.'s No. 8 Heyd ..... Rigging up.

Shell Pet. Corp.'s No. 1 Johnson ..... Rig down; location.

Shell Pet. Corp.'s No. 3 E. O. Stafford, 330 ft. from N and E lines of W½ NW Sec. 18-9s-6w ..... Drlg. shale and sand 6,834 ft.

Shell Pet. Corp.'s No. 1 Tuter ..... Drlg. shale 3,145 ft.

JENNINGS—ACADIA PARISH

Heywood & Heywood's No. 4 Jennings fee, 900 ft. N and 280 ft. E of SW cor. of Sec. 49-9s-2w ..... Spudding.

Yount Lee Oil Co.'s No. 13 Houssiere-Latrielle, Sec. 47-9s-2w, 300 ft. E of No. 12 ..... Drlg. new hole 7,120 ft.

LAKE BARRE—TERREBONNE PARISH

Texas Co.'s No. 10 L.L.&E., 4,643 ft. S, 503 ft. W of NW cor. Sec. 30-21s-20 ..... Sidetracking 3,195 ft.

Texas Co.'s No. 20 State-Lake Barre, Sec. 30-21s-20e ... Top salt 3,706 ft.; coring ahead.

Texas Co.'s No. 28-A Lake Barre, 200 ft. SE from No. 17 in Sec. 33-21s-19e ..... Cm'g. csg. 1,095 ft.

LEESVILLE—LAFOURCHE PARISH

Emerald Pet. Corp.'s No. 1 State Bayou LaFourche, 990 ft. N and 430 ft. E of SW cor. of Sec. 26-21s-22e .... T.D. 3,685 ft.; comp. 960 bbls. day through ⅝-in. choke.

Lincoln Oil Co.'s No. 2 State, 2,890 ft. N of S line of Sec. 26, in Bayou LaFourche, 15 ft. W of E bank, Sec. 26-21s-22e ..... Coring sand 3,464 ft.

T. & L. Prod. Co.'s No. 1 Donaree Nicol, 2,306 ft. N and 1,106 ft. E of SW cor. of Sec. 26-21s-22e ..... T.D. 3,626 ft.; W.O.C.

Texas Co.'s No. 11 L.L.&E., 2,921 ft. S, 1,560 ft. W of NE cor. Sec. 27-21s-22e ..... T.D. 3,769 ft.; set screen; washing in.

Texas Co.'s No. 13 L.L.&E. ..... T.D. 3,690 ft.; set screen; washing in.

LOCKPORT—CALCASIEU PARISH

Magnolia Pet. Co.'s No. 7 Farquaher, 330 ft. S, 174 ft. W of NE cor. SW NE Sec. 8-10s-9w ..... Drlg. 4,850 ft.

Magnolia Pet. Co.'s No. 11 Bordages, 660 ft. N, 490 ft. W of SE cor. NE NE Sec. 8-10s-9w ..... Drlg. shale 7,536 ft.

Magnolia Pet. Co.'s No. 19 Miller, Sec. 9-10s-9w ..... T.D. 4,428 ft.; swabbed and sanded up.

Union Sulphur Co.'s No. 1 Farquaher, 200 ft. S and W lines, NE cor. SW SE Sec. 36-12s-10w, 2-ac. tract .. Tested salt water; S.D.; T.D. 7,468 ft.

Union Sulphur Co.'s No. 2 Moss (W.O.), 850 ft. S, 210 ft. W of NE cor. NW SE ..... Oil sand 6,666 ft.; drlg. plug.

PORT BARRE—ST. LANDRY PARISH

Gulf Ref. Co.'s No. 5 Wilson-Cockran, 600 ft. N, 910 ft. E of No. 2, Sec. 4-6s-5e ..... S.D. 3,418 ft.

Texas Co.'s No. 17 Botney Bay, 1,800 ft. S 8 deg. W, 600 ft. N 82 deg. most southern NE 560 deg. tract, Sec. 4-6s-5e ..... Derrick.

Texas Co.'s No. 20 Botney Bay ..... T.D. 3,526 ft.; W.O.C.

STARKS—CALCASIEU PARISH

Gulf Ref. Co.'s No. 34 Lutcher-Moore, 1,313 ft. N, 400 ft. E of SW cor. Sec. 19-9s-12w ..... S.D. 3,614 ft.

Union Sulphur Co.'s No. 5 Industrial Lbr. Co., 300 ft. S of No. 4, Sec. 30-9s-12w ..... Drlg. rock 3,039 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 787 fee, 119 ft. N, 1,632 ft. W of C Sec. 29-9s-10w ..... T.D. 4,985 ft.; comp. 500 bbls.

Union Sulphur Co.'s No. 788 fee, 602 ft. S, 1,299 ft. W of C Sec. 29-9s-10w ..... T.D. 6,103 ft.; preparing to sidetrack.

Union Sulphur Co.'s No. 790 fee, 929 ft. S and 802 ft. W of center of Sec. 29-9s-10w ..... T.D. 5,567 ft.; set screen and swabbing.

Union Sulphur Co.'s No. 791 fee, 529 ft. N, 907 ft. E of SW cor. Sec. 33-10s-12w ..... Drlg. 5,607 ft.

Union Sulphur Co.'s No. 793 fee ..... Drlg. shale and shells 1,883 ft.

Union Sulphur Co.'s No. 1 Noble, 1,745 ft. S, 150 ft. W of NE cor. Sec. 30-9s-10w ..... T.D. 5,060 ft.; set screen.

Union Sulphur Co.'s No. 1 Bernard Ulrich, 75 ft. out of SW cor. Sec. 19-9s-10w ..... Drlg. sandy shale 5,380 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 12 Yount Lee fee, 800 ft. S of No. 11, in line with Nos. 9 and 10, Sec. 12-13-3w ..... Drlg. hard sandy lime 6,082 ft.

WHITE CASTLE—IBERVILLE PARISH

Shell Pet. Corp.'s No. 8 Wilbert, 717 ft. N 60 deg. 30 min. E from SE of Lot 2 of Fractional Sec. 9, in Sec. 1-11s-12e ..... P.B. 4,446 ft.; swabbed 24 hrs.; S.D.

VINTON—CALCASIEU PARISH

Gulf Ref. Co.'s No. 72-Gardner-Noble-Gray, 643 ft. E, 50 ft. S of NW cor. NE SE Sec. 32-10s-12w ..... Drlg. sand 3,176 ft.

Tri-Oil Co.'s No. 1 Matilda Gray, 38 ft. W, 35 ft. N, of SE cor. NE SW NE Sec. 33-9s-12w ..... Drlg. shale 3,348 ft.

Wilson Broach Co.'s No. 13 Wilson strip, 50 ft. N and 907 ft. E of SW cor. of Sec. 33-10s-12w ..... T.D. 3,510 ft., hard lime; S.D.

Union Sulphur Co.'s No. 1 Vincent ..... T.D. 6,553 ft.; P.B. 4,052 ft., sand showing oil.

Vinton Pet. Co.'s No. 3 Gordon, Sec. 34-10s-12w, 209 ft. from S line, 50 ft. from W line of 2-ac. tract .. Shale 3,288 ft.; W.O.C.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Gem Oil Co. and Johnson Bros.' No. 1 Haedge, 330 ft. out of Lot No. 1, Blk. 18, in San Felipe de Austin Sur. ..... Drlg. 500 ft.

Humble O. & R. Co.'s No. 1 Chelsey, 418 ft. from NW and 150 ft. from S line of 26-ac. tract in W. C. White Sur. ..... Drlg. shale 3,846 ft.

R. R. Mitchell's No. 1 H. Schleider, J. F. Fitzgibbons Sur., 300 ft. out NE cor. 96-ac. tract ..... T.D. 105 ft.; S.D.

Tibbets et al's No. 1 Heidman, 4,320 ft. W along N line from NE cor. of A. Larison Sur. in J. Cooper Sur., 410 ft. at right angles north ..... Drlg. shale 2,842 ft.

BRAZORIA COUNTY

Danciger O. & R. Co.'s No. 3-A Hunt, 2,100 ft. from E, 2,000 ft. from S lines of Hunt's 1,000-ac. tract in W. C. Carson Sur. ..... Drlg. 4,591 ft.

Danciger Oil & Ref. Co.'s No. 1-B Hunt, 1,400 ft. from NW line and 1,750 ft. from NE line of 1,600-acre tract in W. C. Carson Sur. ..... Drlg. 4,566 ft.

Danciger Oil & Ref. Co.'s No. 1 Stark-Brown, 330 ft. out of most easterly NE cor. of lease in Perry & Austin Sur. ..... Drlg. 2,645 ft.

Shell Pet. Corp.'s No. 2 Haury (Danbury), H.T.&B. R.R. Sur., 720 ft. SE of No. 1 Blakely-Winston ..... T.D. 6,067 ft., salt; P.B. to 3,950 ft.; coring sand with streaks shale 4,744 ft.

BRAZOS COUNTY

H. Elliott et al's No. 1 W. F. Odom, near center of 379-ac. tract in SW cor. of Isaak Curll Sur. ..... Cmtd. surface csg. 30 ft.

Liner et al's No. 1 Peters, 300 ft. SE line, 300 ft. SW line of E. V. Peter fee, G. Powell Sur. ..... Rigging up.

F. H. Scott's No. 1 Klintworth, L. Curd Sur., 300 ft. from N line, 400 ft. from E line ..... Gas sand 1,393-1,420 ft.; T.D. 1,512 ft.; D.S. test, no results; S.D., orders.

D. W. Young, Jr.'s (H. L. Bleam) No. 1 Harrison, 300 ft. from S and W lines of lease in J. D. Allcorne Sur. ..... Spudding.

BURLESON COUNTY

Mid-Tex Oil Co.'s No. 2 Young, 700 ft. S of No. 1 in J. Bird Sur. ..... Shale 1,015 ft.; S.D.

CALHOUN COUNTY

Herman Heep Oil Co.'s No. 1 Welder, 7,500 ft. from W line of river ..... Drlg. shale 2,705 ft.

CHAMBERS COUNTY

John H. Carrecker's No. 1 B. Weaver, 404 ft. out of SE cor. of lease in A. Weaver Sur. ..... T.D. 1,935 ft.; S.D.

J. E. Jones' No. 1 Canada-Smith Ranch, 356 ft. W and 330 ft. N of NE cor. of W. F. Gau 544-acre tract in J. S. Roberts Sur. ..... Set 10¾-in. csg. at 1,370 ft.; S.D. 5,092 ft., shale.

Miramar Oil Co.'s No. 1 Geo. Stengler, V. Barrow Sur., 3,200 ft. from E line and center of N and S lines of lease ..... Derrick and digging pits.

COLORADO COUNTY

Union Central Oil Co.'s No. 1 Mann, 620 ft. from W line and 330 ft. from N line of 20-acre tract in J. L. Dugat Sur. ..... Location.

FAYETTE COUNTY

Berry & Hays' No. 1 Otto Steinhauser, 660 ft. from N and E lines of 75-acre tract in J. Schrader Sur. (4 miles SW of Muldoon) ..... Moving in.

FORT BEND COUNTY

Edwards Drlg. Co.'s No. 1 H. Hausler, 780 ft. S of NE cor. of 103-acre tract, 510 ft. W of E line, Wickson Sur. ..... Coring hard sand 3,121 ft.

O'Connor Dome Oil Co.'s (was A. N. Phillips et al's) No. 1 Grigar, 2,150 varas E line, 1,550 varas N line, J. S. O'Connor Sur. ..... 40 ft. of sand; T.S. 4,123 ft.; show water; S.D. 5,185 ft.; dry and abnd.

Phillips Pet. Co.'s No. 1 A. B. Holmes, 600 ft. from E and 300 ft. from S lines of 200-ac. tract in Samuel Isaac Sur. ..... Drlg. 6,625 ft.

Porter & Blanchard's No. 2 Wheat ..... Odor oil 2,528-83 ft.; T.S. 2,928 ft.; T.D. 2,967 ft.; set screen; making salt water and gas; repairing rig.

GRIMES COUNTY

Clark & Dodd's No. 1 Murry, 150 ft. W line, 300 ft. S line, Anderson Sur. ..... Gumbo 1,305 ft.

Cambrian Oil Co.'s No. 1 W. V. Sangster, John Moore Sur., 300 ft. out of most westerly NW cor. of 218-ac. tract ..... Derrick.

H. C. Ratcliff's No. 1 Fulgham, A. Tuttle Sur., 600 ft. N line, 540 ft. W line of lease ..... Derrick.

HARDIN COUNTY

Greer & Frazier's No. 1 O. Sternberg, 660 ft. out of SW cor. of E 384 acres in H.&T.B. Sur. No. 283 ..... Drlg. sand and boulders 1,315 ft.

Resource Oil Corp.'s No. 1 Sternberg Oil Co., C. of G. Dorsey No. 3 Sur., Abst. 193 ..... Derrick.

HARRIS COUNTY

Glenn H. McCarthy's No. 2 Preston on 80 ac. in Sec. 2, Blk. 9, 4 miles W of LaPorte ..... Location.

Golding & Murchison's No. 1 Clappert, W.C.R.R. Sur., Blk. 4, Sec. 9, 1,350 ft. from E line, 330 ft. from N line ..... D.S. test 19 min. through ¼-in. choke with seat at 6,275 ft. showed 8 thribbles mud, little gas; rotating 6,600 ft.

J. A. Hodges' No. 1 Scott, 200 ft. S, 900 ft. W of intersection of Crosby Huffman, F. Rankin Sur. ..... T.D. 6,275 ft.; S.D.

HOUSTON COUNTY

Murmac Oil Co.'s No. 1 G. L. Murray & Son, John Durst Sur. ..... T.D. 3,450 ft.; S.D.

JACKSON COUNTY

Atkins & O'Neil's No. 1 Ward (Davis), C Lot 93, I.&G.N. Sur. No. 18, Blk. 8 ..... Drlg. 6,519 ft.

Enclo Gas Co.'s No. 1 Toney, 150 ft. out of NW cor. of Toney's 1,064-ac. tract in Raymor Musquiz Sur. .. Show gas 2,570-2,600 ft. and 3,000-30 ft. and 3,940-50 ft.; drlg. 5,325 ft.

JASPER COUNTY

Louis Franklin's No. 1 Cartwright, 360 varas E line and 740 varas S line of Lot 19, Edward Legrande Sur. ... Derrick.

JEFFERSON COUNTY

Lucky Strike Oil Co.'s No. 1 Walker, D. Easley Sur., 2,100 ft. N, 1,400 ft. E of NW cor. of Lot No. 13 .... S.D. 1,708 ft., shale and lime.

Sun Oil Co.'s No. 1 H. Long, 1,500 ft. N line, 990 ft. E line of lease ..... Sand 6,389-6,407 ft.; D.S. test at 6,375 ft. showed 6,000 ft. S.W., 23 min.; reaming 6,407 ft.

LIBERTY COUNTY

Extension Oil Co.'s No. 1 J. A. Lovett, 200 ft. from E and 600 ft. from S line of lease, P. P. Deevers Sur... T.D. 1,565 ft., shale and sand; S.D.

Gulf Prod. Co.'s No. 2 Kirby, John Pleasants Sur., 1,366 ft. S of No. 1 ..... Drlg. 8,021 ft.

Gulf Prod. Co.'s No. 4-C Kirby, 7,100 ft. S and 1,383 ft. E of NW cor. of John Pleasant Sur. ..... Drlg. 1,057 ft.

Liberty & Independent Oil Co.'s No. 1 J. M. Neal, 3,550 varas from E line and 500 varas from N line of Samuel Strong Sur. ..... Derrick.

Miramar Oil Corp.'s No. 1 Crowe & Jacoba, H.&T.C. Sur. 21, 950 ft. W of E line, 110 ft. N of S line of 300-ac. tract ..... T.D. 4,563 ft.; swabg. 200 bbls. of P.L. oil daily through 5/16-in. choke; grav. 26, corrected; drlg. 4,778 ft.; shale went dead.

H. Sample's No. 1 Security Trust Co., 466 ft. from S and E lines of N 600 ac. of Lot 3 of H. Sample Subd. of J. Faulk Sur. ..... Location; clearing titles.

Seale's No. 1 Finley, 700 ft. E and 400 ft. N of SW cor. of 60-acre tract, A. B. Hardin Sur. ..... Derrick.

Thomas et al's No. 1-A Eicke, 660 ft. from W line and 2,350 ft. from S line of tract in Green Sur. ..... T.D. 5,163 ft.; preparing to set csg.

Turnbull & Irwin et al's No. 1 N. Hildebrandt, W. Whitlock Sur., C of E ⅛ of survey ..... Drlg. 2,900 ft.

MADISON COUNTY

Paul Edwards et al's No. 1 L. M. Peters, Mahala Wilkinson Sur., 400 ft. from N line and 300 ft. from W line of 132-acre tract ..... Shale 3,865 ft.; S.D.

Foster et al's No. 1 Poteet, J. H. Hunter Sur., 350 ft. S and 150 ft. E of most westerly NW cor. of 288-acre tract ..... S.D. 2,380 ft.

MATAGORDA COUNTY

Hamil & Smith's No. 2 Myers, 275 ft. W of No. 1 and 75 ft. S of creek in W. Haddon Sur. ..... Derrick.

Oils Consolidated's No. 2 Hawkins, 200 ft. due NE of No. 1 well ..... Cmtd. 9⅝-in. csg. at 5,358 ft.; T.D. 5,516 f...; preparing to start up.

Skelly Oil Co.'s No. 1 Cobb, M. Cummins Sur., 434 ft. from E, 1,506 ft. S of F. G. Cobb's 167-ac. tract .... T.D. 7,186 ft.; P.B. to 7,076 ft.; 17/64-in. choke put on bottom of tubing; flowed 198 bbls. distillate 24 hrs.; S.D. for storage.

United North & South Dev. Co.'s No. 1 Unit 4, Buckeye farm, J. C. Keller league, 214 ft. N line and 302 ft. E line of lease ..... Drlg. 6,615 ft.

United North & South Dev. Co.'s No. 1 Unit 6 (No. 2 Stoddard), 25 ft. each way out of NW cor. of Lot 19, Buckeye townsite ..... Drlg. lime and shale 8,655 ft.

United North & South Dev. Co.'s No. 1 Unit No. 58, 250 ft. N and 200 ft. W of SE cor. of Unit No. 58 ..... Derrick.

MONTGOMERY COUNTY

Baker et al's No. 1 Benker, D. James Sur. ..... Old T.D. 4,921 ft.; P.B. to 4,909 ft.; T.D. 4,647 ft.; D.S. test 4,629-47 ft., 3 min., ½-in. choke on top and bottom; small amount gas; no pressure; lost seat; S.D.

Cooper & Smith's No. 1 Post, Daniel Roper Sur. ..... Cored lignite and sandy shale 2,823-27 ft.; S.D.

Deering & Frazier's No. 1 Hicks, 660 ft. S and W of NE cor. 565-acre tract, T. Taylor Sur. ..... Bldg. road.

Hamill & Smith's No. 1 Foster Lbr. Co., Pryor Bryan Sur., 7,147 ft. from W line and 3,760 ft. from N line of lease ..... Shale 6,310 ft.

McElroy Oil Corp.'s No. 1 Grogan Cochran Lbr. Co., 6,943 ft. from N line and 900 ft. from W line of 100-acre tract in P. V. Hamblin Sur. ..... Moving in.

Steen Drlg. Co.'s No. 1 Long Bell Lbr. Co., 440 ft. S and E from NW cor. of Wilson Barker Sur. ..... Top Cockfield 5,815 ft.; sand 5,867-69 ft., sand 5,873-77 ft.; D.S. test 5,855-77 ft. showed 350 lbs. pressure with 2 gals. dist. and 2 gals. mud in 4 min.; coring 5,981 ft.; D.S. test 5,873-84 ft., 575 lbs. pressure, 15 min., 1 joint brown dist., ¼-in. choke on top, ⅜-in. choke on bottom; D.S. test 6,016-53 ft.; showed 23 thribbles salt water, 11 min., 250 lbs.; S.D. circulating.

NACOGDOCHES COUNTY

James W. Rich's No. 1 Unknown, J. L. Ewing Sur., 2,777 ft. from W line, 5,208 ft. from S line of survey.. No report.

NEWTON COUNTY

Tide Water Oil Co.'s No. 1 Southwest Lbr. Co., 467 ft. S of most southerly N line and 1,664 ft. E of most westerly W line of 1,500-ac. tract in Henry Cochran Sur. ..... Drlg. 3,325 ft.

ORANGE COUNTY

Blue Line Oil Co.'s No. 1 Godwin, Richard Ballew Sur., 300 ft. from E line and 150 ft. from NE line of Godwin 20-acre tract ..... S.D. 900 ft.; bldg. road.

Texas Louisiana Oil Co.'s No. 1 Starks, 2,450 ft. N of NW cor. M. Delano Sur. 68, 10,500 ft. E at R/A .... T.D. 1,200 ft.; S.D.

POLK COUNTY

Alpha Pet. Co.'s No. 1 Kirby & West, Thomas Sur., 330 ft. out of SE cor. of 150-ac. lease ..... T.D. 4,907 ft.; top Cockfield 4,770 ft.; 60 bbls. salt water daily through ¼-in. choke; T.P. 950 lbs.; standing.

REFUGIO COUNTY

C. B. Bunte's No. 1 Rook, 12,400 ft. from W and 11,500 ft. from N line of Antonio De Lavina Sur. ..... Derrick.

Cox et al's No. 1 F. W. Bissett, J. Crockett Sur. ..... Drlg. 3,003 ft.

Heard-Holland Oil Co.'s No. 1 Peck, 366 ft. N and W out of NW and SW of Bonnie View Subd. ..... Top Heterostegina 4,437 ft.; cored Greta sand at 4,524-26 ft.; S.D.

Humble Oil & Ref. Co.'s No. 13 O'Connor, 933 ft. NE of No. 12 and 933 ft. NW of No. 11 on 5,545-acre tract in John Keating Sur. ..... Location.

G. Jeffries' No. 1 James F. Power, 759 ft. from N and 1,812 ft. from E lines of 500-acre lease in J. J. Garza and J. Vidaurri Sur. ..... S. D. 550 ft.

SAN AUGUSTINE COUNTY

Fidelity Exploration Co.'s No. 1 Bryan & Flourney, 1,926 ft. from N and 725 ft. from E lines of Sec. 14, S.P.R.R. Sur. ..... Drlg. hard lime and shale 1,702 ft.

SAN JACINTO COUNTY

Darby Jones' No. 1 McBee ..... Sandy shale 2,695 ft.; S.D.

Piedmont Oil Co.'s No. 2 Foster, 330 ft. each way out of NE cor. Geo. Taylor Sur. ..... Building road.

VICTORIA COUNTY

Markle et al's No. 1 Dunlap, Manuel Zepeda Sur., 9,550 ft. along NW line of survey from most northerly NE cor. and 1,475 ft. SE at R/A ..... S.D. 1,818 ft.

Wm. Quick's No. 1 Tom Joshua, 330 ft. out of NW cor. of Blk. 21, F. G. Hidalgo Sur. ..... Rigging up.

R. L. Shroyer's No. 1 C. Ross, 482 ft. from N line, 1,666 ft. from E line of 100-acre tract in M. A. Castanan Sur. ..... Moving in.

Texas Co.'s No. 6-A McFaddin, A. J. Gray Sur., 5,600 ft. from NE line, 250 ft. from SE line ..... Sand 4,601 ft.; top sand 4,549 ft.; closed in; T.P. 1,150 lbs., C.P. 1,450 lbs.

Texas Co.'s No. 7-A McFaddin, 250 ft. due N of No. 7, A. J. Gray Sur. ..... T.D. 1,597 ft.; standing with 125 lbs. pressure.

Texas Co.'s No. 8 McFaddin, A. J. Gray Sur., 6,600 ft. N of S line, 1,383 ft. from E line of NE cor. ..... Drlg. shale and lime 5,341 ft.

WALLER COUNTY

De Armand's No. 1 Vaughn, 1,200 ft. N of Kirby's No. 1 Vaughn, J. McFarland Sur. No. 46 ..... Location.

WHARTON COUNTY

Pure Oil Co.'s No. 1 W. Garrett, 4,456 ft. SE and 1,690 ft. NE of W cor. of Sec. 28 ..... To deepen; T.D. 6,343 ft.; washing down at 3,000 ft.

Pure Oil Co.'s No. 2 Lancaster, 1,320 ft. NW of SE line and 1,476 ft. SW of NE line of tract in Sec. 23, Morris & Cummings Sur. ..... Drlg. 74 ft.

Pure Oil Co.'s No. 1 Stewart ..... T.D. 5,983 ft.; preparing to pull 6½-in. O.D. csg. cmtd. 5,311 ft.

Pure Oil Co.'s No. 2 Stewart, Morris & Cummings Sur., Sec. 25, 990 ft. out of SW cor. of 160 acres ..... T.D. 6,475 ft., hard shale and lime shells; set 9⅝-in. csg. on bottom.

Pure Oil Co.'s No. 1 Wallace Houston, 858 ft. SE of NW line, 1,690 ft. NE of SW line, Sec. 28 (T. W. Heard Sur.) ..... T.D. 6,457 ft.; shot 5-in. csg. at 5,554 ft.; T.D. 6,452 ft., shale and sandstone; last 6 in. good odor oil; cmtd. 5-in. csg. at 5,909 ft.

SOUTH LOUISIANA

ACADIA PARISH

Rhodes Drlg. Co.'s No. 1 Latrell ..... Drlg. 2,240 ft.

Superior Oil Co.'s No. 1 P. O. Hermandes, 990 ft. W, 990 ft. S of NE cor. SE Sec. 34-8s-3e ..... T.D. 8,900 ft.; running 7-in. csg.

Woodley Pet. Co.'s No. 1 Links Bros., 150 ft. S and E of NW cor. Sec. 36-7S-1e ..... Drlg. shale 2,740 ft.

AVOYELLES PARISH

Hass & Stokes' No. 1 Hass, from NE cor. SE Sec. 28 go along E line of Sec. 28 2,486 ft. to point on highway, thence 84° E on highway for 386 ft., thence N 87° E for 4,426 ft., then N 45° E 226 ft.... Rigging up.

BEAUREGARD PARISH

Humble Oil & Ref. Co.'s No. 1 Long Bell, 200 ft. E of W line and 2,640 ft. S of N line of Sec. 11-5s-7w .... Drlg. shale 8,084 ft.

F. W. Martin's No. 1 J. E. Cochran, SE cor. of NE of Sec. 34-4s-12w (W part of county and 6 miles S of Merryville) ..... Set 10-in. csg. at 420 ft.

CALCASIEU PARISH

Fred Oil Co.'s No. 1 Faisst, 566 ft. N, 300 ft. W of SE cor. of NW of SE Sec. 26-8s-10w ..... Shale 2,100 ft.

Union Sulphur Co.'s No. 1 Barbe, 2,681 ft. W, 2,647 ft. S of NE cor. Sec. 1-9s-8w ..... Fishing; hard shale 8,125 ft.

IBERIA PARISH

Y. D. Spell's No. 1 Bernard, 5,138 ft. SW cor. along western boundary line, then in NE direction 1,140 ft. along N line of Bernard land, 52 ft. S of well in Sec. 54-12s-7e ..... S.D. 2,850 ft.

JEFFERSON DAVIS PARISH

Humble O. & R. Co.'s No. 2 Devilbiss, 1,850 ft. S, 250 ft. W of NE cor. Sec. 14-9s-4w ..... Screen test 7,691-7,704 ft.; T.D. 7,705 ft.; P.B. to 7,300 ft.

Shell Pet. Corp.'s No. 1 Kratsa, 660 ft. S, 330 ft. W of NE cor. NW Sec. 12-9s-4w ..... Brittle shale 8,185 ft.

LAFOURCHE PARISH

Southern Sulphur Corp.'s No. 1 D. L. Lagraize, 800 ft. E of NW cor. of Lot 7, thence 250 ft. S of Sec. 26-21s-22e ..... Spudded and S.D.

ST. BERNARD PARISH

Southern Sulphur Corp.'s No. 1 Lake Lery, 400 ft. W, 500 ft. N, SW cor. Sec. 28-13s-15e ..... Gumbo 2,867 ft.; no report.

ST. LANDRY PARISH

Bailey Gaunce's No. 1 Lewis, 300 ft. N and E of SW cor. of NW of NE of Section 29-5s-6e (workover) ... Drlg. sand 4,930 ft.

H. H. Hotchins Lbr. Co.'s No. 1 Whiteman Lbr. Co., 250 ft. out of SW cor. NE Sec. 15-5s-6e ..... Drlg. sand rock 3,620 ft.

ST. MARTIN PARISH

Standard Oil Co. of Kansas' No. 1 E. B. Hopkins, Sec. 33-10s-6e ..... Drlg. shale 7,911 ft.

Texts Co.'s No. 6 St. Martin Land Co., 660 ft. S and 500 ft. W of NE cor. SE Sec. 17-8s-7 ..... Rigging up.

TERREBONNE PARISH

Texas Co.'s No. 1-B State-Bay Junop, 2,300 ft. N, 950 ft. E of SW cor. Sec. 27-21s-14e ..... T.D. 6,295 ft.; S.D.

Texas Co.'s No. 10 State-Caillou Island ..... Drlg. shale 5,825 ft.

Texas Co.'s No. 11 State-Caillou Island, 500 ft. SW from No. 9, Sec. 9-23s-20e ..... Sand 3,983 ft.; comp. 2,070 bbls., ½-in. choke, 620 lbs., 31 gravity.

Texas Co.'s No. 7 State Bay-St. Elaine, 3,900 ft. N, 2,300 ft. E of SW cor. Sec. 8-22s-18e ..... T.D. 2,721 ft.; comp. 30 bbls. daily.

VERNON PARISH

Robt. K. Williams, Jr.'s No. 1 Llano Del Rio, 1,185 ft. S, 1,000 ft. W of NE cor. Sec. 7-1n-9w ..... Preparing to spud.

NEW AND IMPROVED EQUIPMENT

Method of Manufacturing Nicholson Float Different

The Nicholson welded steel float, manufactured by W. H. Nicholson & Co., 12 Oregon Street, Wilkes-Barre, Pa., is made in 3-inch to 12-inch sizes, either round or elliptical, of two halves of a special alloy steel, die-formed, with welding edges formed by a special process. The two

halves then are clamped together and welded. This method offers three advantages: It produces a float without a projection or rim, a necessity in water columns and similar apparatus; it permits a deep, homogeneous weld, free from porosity; and the depth of the weld, together with the turned-in edges of the float halves, forms a strengthening ring at the most critical point in seamed float construction. In elliptical floats, especially this strengthening ring is a distinct asset, permitting its use with pressures otherwise impossible.

The method of fastening the spud is another feature. The spuds are welded on the outside surface, no metal being removed from the wall to accommodate the spud. This method strengthens the float instead of weakening it. The entire float then is heat-treated, polished and either nickel, chromium, or cadmium plated, as specified, to prevent corrosion.

Nicholson steel floats are not affected by high pressure superheated steam temperatures. Thousands of Nicholson steel floats are said to be installed in Nicholson traps and other appliances in many of the largest central power stations in the country, operating at pressures from 300 to 1,350 pounds. They are also being used by manufacturers of steam traps, water columns, tanks, liquid controls, refrigerating machines, oil tanks, etc.

Blaw-Knox Develops Device for Mixing Gas and Liquid

The Blaw-Knox contactor is offered by the Blaw-Knox Co., Pittsburgh, Pa., as a thoroughly engineered device to effect a complete mixing of a gas and a liquid. It is used for gas washing, gas cooling, oxidation, steam de-superheating, hydration, etc. Its principles are unique and relatively new. In this machine the gas is dynamically forced into intimate contact with the liquid. The turbulence of a miniature tornado or waterspout is put to work. In operation it is inherently automatic, adjusting itself instantly to changes in gas flow while maintaining the highest efficiency of contact between liquid and gas.

In the application of Blaw-Knox contactors, full advantage is taken of the extreme intimacy of contact effected between the liquid and gas. The device is self-contained. There is nothing to get out of order. Flow passages are large and thoroughly self-cleaning. Operation is not critical. Gas or vapor rates may vary over a wide range. Any desired ratio of liquid to gas can be maintained. Capacity per unit of cross-sectional area is high and usually exceeds corresponding tower practice. Heavy fluids, even slurries, may be thoroughly contacted with a gas or vapor. The unit may be as readily used on continuous processes as on batch processes.

Among the Equipment Houses

William S. Bryant, formerly sales manager for the Insulating Products Co., Aurora, Ill., is traveling through the Mid-Continent area introducing Bryant's 55 heat insulating cement. He is a member of the firm of Doster, Dressel & Bryant, 2400 West Madison Street, Chicago.

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The International Supply Co., Tulsa, has established the following new stores: Fairfax, Okla., E. H. Raymond, manager, and Ted Wimmer, field salesman; Chase, Kans., Bob Aldrich, manager, and John Rice, field salesman; Houston, Tex., William Ussery, manager, James Mayfield, field salesman, and E. C. Kirby, city salesman. The company also has established a branch office in Dallas, Tex., with J. R. McCrea in charge.

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Kenneth R. Teis, formerly Kansas production engineer with the Phillips Petroleum Co., has joined the Parkersburg Rig & Reel Co. as sales engineer for Oklahoma and Kansas. Mr. Teis' headquarters will be in Tulsa.

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William F. Sailer, formerly with Alco Products, Inc., and the Griscom-Russell Co., has joined Steel & Tubes, Inc., Cleveland, Ohio. His headquarters will be the Brooklyn office of the company and he will devote his attention to the oil refinery and marine fields.

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The Hercules Motors Corp., Canton, Ohio, has re-established direct factory representation on the Pacific Coast, having opened an office in San Francisco with Oliver S. Kelly in charge.

—

The Houston, Tex., office of Lee C. Moore & Co. is now located at 3229 Navigation Boulevard, with enlarged quarters. W. H. Payne is district manager.

—

The Wackman Welded Ware Co., Seventh and Victor Streets, St. Louis, Mo., has established warehousing and delivery facilities at 516 South Franklin Street, Chicago, to serve the Chicago district with steel barrel requirements. V. A. Holmes has been appointed district representative in charge of Chicago sales.

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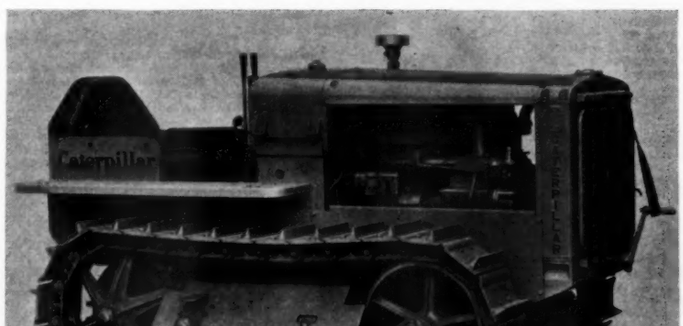
Earl C. Smith, chief metallurgist, Republic Steel Corp., Youngstown, Ohio, addressed the Detroit, Mich., chapter, American Society for Metals, April 9, on "What the Steel Makers Are Doing for the Consumer." He gave the same address before the Toledo, Ohio, chapter, April 10.

Added Economies Said to Mark New "Caterpillar"



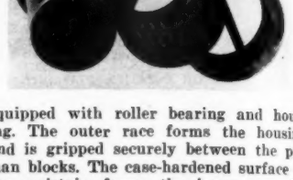
The triple economy of low first cost, operation on inexpensive fuels and the power savings of track-type traction are among the features of the new "Caterpillar" Twenty-two tractor, according to an announcement issued by Caterpillar Tractor Co., Peoria, Ill.

The new model is powered with a four-cylinder, four-cycle, valve-in-head engine developed especially for converting a wide range of low-volatility fuels into efficient, dependable tractor performance. The engine has a 4-inch bore and 5-inch stroke and develops a maximum horsepower of 23.69 at the drawbar and 28.39 on the belt at governed speed of 1,250 r.p.m. Lubrication is force-feed to all main, connecting-rod and rocker-arm bearings. A twin fuel tank holds 20 gallons of tractor fuel and 2 gallons of gasoline, the latter used in starting. A three-way fuel control valve is located on the dash in easy reach of the operator.

The fuel and cooling systems, manifolds and cylinder head have been designed to give uniform, high operating efficiency in handling low-cost fuels. The carburetor is located directly beneath the heated manifold jacket, and a heat-exchange valve is provided to insure thorough vaporization of the fuel before it enters the cylinder. Water circulation is controlled with a thermostat and a radiator by-pass allows the engine to warm up rapidly. The new Eisemann magneto is of the stationary winding inductor type, which requires no lubrication and is said to be simple and accessible. The Twenty-two is available in either standard or wide gauge models.

Lee C. Moore Introducing Improved Roller Bearings

An improved roller bearing with a heat-treated wristpin is being offered by Lee C. Moore & Co. of Tulsa and Pittsburgh, Pa. The assembly consists of a special A.P.I. heat-treated wristpin



equipped with roller bearing and housing. The outer race forms the housing and is gripped securely between the pitman blocks. The case-hardened surface of the wristpin forms the inner race for the bearings, which are greased through an Alemite fitting and a hole in the wristpin. Machined grooves cut in the shoulder of the bearings prevent the grease from escaping. The housing assembly is held in position on the pin by a collar and screw. Equipment now in the field may be equipped with this improved bearing.

New Web Wilson Connector Embodies Many Advantages

Web Wilson, 418 W. W. Wilson Building, Huntington Park, Calif., who for years was general manager of the Wilson & Willard Manufacturing Co., has developed the Web Wilson connector which will be marketed under his personal supervision. This connector is calculated to withstand 923,000 pounds dead load with safety factor of 2½. Total weight of the connector is 2,240 pounds. The spring has a 10-inch travel, giving unusual flexibility and ease of tension control.

The shock-absorbing feature eliminates the bounce of the stand when picked up by the elevator, thus reducing the hazard of an elevator opening and dropping the load. The shock-absorbing action also allows picking the pin out of the box without a bouncing action, which has been the cause of battered threads. The center of gravity is exactly in the center of the tool.

The Web Wilson connector can be changed from drilling to setting casing within a few minutes. A novel bearing permits sufficient initial set to be put in the spring without preventing free swiveling. All of the 10 inches of spring movement is usable for handling loads of various sizes of drilling pipe.

The connector is made of special steel castings and forgings of alloy steel. The ears support the elevator links widely enough apart so that the connector will act as an equalizer, insuring an equal load on each link and elevator ear, regardless of the unequal lengths of the links. The load is carried on two ears instead of one point.

IMPROVED MODEL CHAIN HOIST

An improved model chain hoist is announced by the Wright Manufacturing Division of the American Chain Co., Inc., York, Pa., increasing durability, efficiency and usefulness.

One innovation is zinc coating of all exposed parts, making the hoist practical for outdoor use and for service in moist and other corrosive atmospheres. The addition of precision ball bearings

with integral grease seals supporting all moving parts, increases the efficiency over former models. Wear is reduced on all vital moving parts by a system of continuous lubrication of the positively sealed precision bearings. Additional minor improvements include hardened pawl tip, improved load chain guard and ball spring covers on oil tubes.

Painting Jobs About Lease Simplified by New Machine

Basil B. Zavoico, Tulsa geologist, has added to his other duties the management of the newly formed Electrical Painting Equipment Co., Inc., exclusive distributor for Norris airless painting machines in Oklahoma, Texas and Kansas.

This company handles an all-purpose painting machine that sprays all kinds of long and short paints and enamels.

The direction of the paint may be controlled to a sharp line. A strip 18 inches to one-half inch can be painted, and the flow density of the coating regulated as desired. The machine may be used not only for painting, but also for applying

rubber latex to textiles, and many other kinds of mechanical operations where fluids are applied to surfaces.

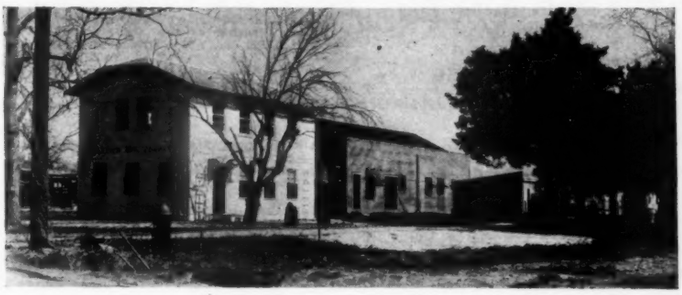
As adapted to the oil industry, this machine will find use in the inside and outside painting of lease houses, offices, garages, shops, bulk stations, terminal buildings and storage tanks, service stations, pump houses, refineries, gasoline plants, and all phases of maintenance work. Stenciling, stippling and stripe painting can be done with the same equipment.

The machine is shown in the accompanying cut. It weighs only 5½ pounds and much of it is made of duraluminum and aluminum. It consists of a paint container that is filled and easily put into place and feeds the fluid into the lower part of the spraying device. From that small well the paint is forced upward by a spiral feed to the multiple disc distributor that rotates at a speed up to 10,000 r.p.m., and is driven by an enclosed electric motor in the upper part of the case. This motor is protected against entrance of any of the sprayed fluid by a current of air forced outward from the motor base by a centrifugal fan mounted upon the common rotor shaft.

To regulate the direction of the paint spray the opening through which the paint or other material is discharged is adjustable. A sharp pattern is always maintained on the surface being covered and it is possible to paint up to moldings, to the edge of window or door casings, etc. Stripe painting is done by the use of an easily attached special nozzle.

Power can be obtained by plugging into any standard light socket. The regular machine operates upon 110-volt alternating or direct current, and uses no more current than an ordinary vacuum cleaner. Mr. Zavoico maintains offices and demonstration rooms in the Mayo Building, Tulsa.

Gearench Manufacturing Co. Has New Office Building



To accommodate its expanding business, the Gearench Manufacturing Co., Houston, Tex., has just completed a new office building adjacent to its shops. The upper floor has been equipped as a pattern shop. The lower floor contains several offices, and a large display room where models of the company's complete line of tongs and wrenches will be on exhibit.

Notes About Trade Literature

The Russell Electric Co., 380 West Huron Street, Chicago, is sending to those who ask for it a bulletin describing the Holdheet pyrometer, designated as an "individual pyrometer for every heat machine."

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The story of Marmon-Herrington trucks is told in a 16-page booklet which the Marmon-Herrington Co., Inc., Indianapolis, Ind., is sending to those who ask for it.

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The "Index and Directory for 1934," published by the Pittsburgh Plate Glass Co., Pittsburgh, Pa., presents lists of the concern's divisional offices, manufacturing divisions and products, which include many items used in the oil industry.

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Two booklets being distributed by the General Electric Co. are "Electric Heating Units and Devices," 52 pages, and "Improving Power-factor for Profit," 28 pages.

—

A bulletin from the Washington Engine & Pump Co., Washington, Pa., shows graphically the percentage of reduction in area caused by different quantities of deposit in line pipe.

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A bulletin issued by the Corby Supply Co., 3942 West Pine Boulevard, St. Louis, Mo., contains a classified list of more than 300 compressed-air, electric, gas, oil and steam-driven tools and equipment which it handles.

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The C. J. Tagliabue Manufacturing Co., Park and Nostrand Avenues, Brooklyn, N. Y., has issued an interesting folder on the new Tag photoelectrically balanced recording potentiometer.

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"Installing General Cable Trenchlay" is the subject of a 12-page booklet distributed by the General Cable Corp., 420 Lexington Avenue, New York.

—

Worthington power pumps of the vertical triplex single-acting type, equipped with the Worthington multi-v-drive, are the subject of a bulletin issued by the Worthington Pump & Machinery Corp., Harrison, N. J.

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The Columbia Nut & Bolt Co., Inc., Bridgeport, Conn., is sending on request a bulletin telling about the Columbia "Gib" nut lock and Columbia lock nuts.

—

A supplement on overhauled and guaranteed pumps accompanies the current issue of the Bridgeport Bulletin, published by the Bridgeport Machine Co., Wichita, Kans.

Portable Transformer Has Nine Primary Current Ranges

The Esterline-Angus Co., Indianapolis, Ind., is introducing new portable current transformers for use with indicating and recording instruments. Each transformer has nine primary current ranges, of 10, 12.5, 25, 50, 100, 160, 200, 400, and 800 amperes capacity. The secondary capacity is 5 amperes, adapting it for use with all standard A.C. ammeters, wattmeters and power factor instruments.

The volt ampere rating is 25, and the transformers are compensated for a load of 15 volt-amperes. This high volt-ampere rating enables the transformer to operate several instruments simultaneously at high accuracy. These transformers are insulated for use on circuits of all voltages up to and including 2,500 volts.

The containing cases are of cast aluminum to withstand rough usage. The weight is 28 pounds. The cores are made of a specially selected grade of electrical sheet steel, proportioned so as to give exceedingly low ratio and phase angle errors. Each transformer is provided with a built-in secondary short-circuiting switch for the protection of the operator. The finish is black baked enamel and nickel plate.

These transformers are designed for use on pipe line telephone lines and in all kinds of portable testing, and their range is such that they cover the usual capacities of electrical equipment used in industry.

Men Well Known in the Equipment Field

Harvey Dieterich, manager of the structural department of Joseph T. Ryerson & Son, Inc., has been made assistant vice president in charge of the operations of the structural and special order departments in Chicago.

Mr. Dieterich, who has been with the

HARVEY DIETERICH

company 30 years and is one of the most experienced and widely known men in the structural field, had charge of the structural fabrication on ship parts during the World War, and tons of ship parts were sent east for completion under his direction. He is a baseball fan, and a fair golfer, but he is happiest when he has a roll of blueprints under his arm.

Gun Puts Packing Member in Place on the Drill Stem

J. H. McEvoy & Co., Houston, Tex., announces the manufacture and distribution of a new type pressure-operated blowout preventer inserter, known as type C. The function of the inserter is to thrust the packing member of the blowout preventer in place around the drill stem, tubing or casing by means of a steam or hydraulically operated gun, controlled by a four-way valve installed within easy reach of the driller. A quarter turn of the valve actuates the piston and piston rod of the gun, which thrusts the packing member at great speed around the pipe in the hole, and holds it there until the pipe is lowered, carrying the packing member into the bowl of the preventer and effecting a positive seal.

The pressure gun assembly is rigidly attached to the main body of the preventer, so as to leave the lip ring of the preventer free to be adjusted as desired. The packing member is the standard automatic locking dog type, the dogs engaging under the lip ring when the packing member is forced into the body of the preventer by lowering the drill pipe. Both the lip ring on the preventer body and the bottom of the packing member carry the same taper, thus permitting the packing member to be forced into the preventer body even though the pipe in the hole is as far as possible off center.

Parts of the McEvoy preventer inserter subject to rust or corrosion are manufactured of stainless steel, insuring swift, positive action under all operating conditions. The new inserter is available on new preventers of the company's manufacture, or may be applied to convert any manual type of preventer of either McEvoy safety pressure head type or McEvoy Hosmer type into a positive pressure operated inserter type.

Wildcat Operations in Louisiana-Arkansas

(Continued from Page 66)

R. B. Campbell et al's No. 1 Cook Land Co., 150 ft. N, 300 ft. W, SE cor. NW NW Sec. 35-10-12 ..... W.O. csg. 1,586 ft.
Florence Oil Co.'s No. 2 Crawford, Sec. 20-8-12 ..... S.O.; S.D.; W.O. 1,975 ft.
Helena O. & G. Co.'s No. 1 Jackson, 330 ft. S and W, NE cor. SE Sec. 10-9-13 ..... Using acid 2,002 ft.
Pete Johnson et al's No. 1 Dow, 330 ft. S and W, NE cor. SE Sec. 9-9-13 ..... Set 10-in. 45 ft.; drlg. 900 ft.
L. D. Higgins et al's No. 1 Burkett, 330 ft. S, 270 ft. W, NE cor. Sec. 16-9-13 ..... Comp. pumping 35 bbls.; 2,034 ft.
Lula M. Layton's No. 2 Henderson, 330 ft. S and W, NE cor. NW NW Sec. 29-9-13 ..... S.D. 1,100 ft.
Zan Lloyd's No. 1 Henderson, 330 ft. N and W, C Sec. 29-9-13 ..... W.O.S.R. 2,000 ft.
H. C. Maulding's No. 2 Alford, 330 ft. N and E, SW cor. NW NW Sec. 18-7-10 ..... Set 6-in. 2,550 ft.
Miles & Strickland's No. 1 McGee, 17 ft. S, 24 ft. E. NW cor. Lot 15, Sec. 5-9-13 ..... S.D. for fuel 950 ft.
John W. Moffett's No. 1 Logan Oil Co., Sec. 3-9-13 ..... W.O.S.R. 1,985 ft.
Geo. L. Pace's No. 1 Heard, Sec. 10-9-13 ..... P.B. 2,018 ft.
Geo. L. Pace's No. 1 Logan, 430 ft. N, 330 ft. E, SW cor. Sec. 26-10-13 ..... Used acid 1,938 ft.
Sabine Royalties Co.'s No. 3 Graham, 330 ft. S and W, NE cor. SW NW Sec. 20-9-13 ..... Using acid 2,001 ft.
L. L. Posey's No. 3 Burkett, 330 ft. S and E, NW cor. NE NW Sec. 10-9-13 ..... W.O.S.R. 1,984 ft.
W. E. Rowe et al's No. 1 Craig, 330 ft. S and E of center Sec. 23-9-13 ..... S.D. 1,200 ft.
J. A. Stinson's No. 1 Whitney Corp., 330 ft. S and W, NE cor. Sec. 8-9-13 ..... Set 8-in. 1,527 ft.
Stumpff & McFall's No. 1 Paul estate, Sec. 10-9-13 ..... Tested S.W.; S.O. 1,976 ft.
Windsor Oil Co.'s No. 2 Barr, 330 ft. N and E, SW cor. NW Sec. 15-9-13 ..... Location.

RAPIDES PARISH

Ben Banner's No. 1 Bentley Lbr. Co., 2,640 ft. E, NW cor. Sec. 11-4n-6w ..... S.D. 740 ft.
Evans & Collingsworth's No. 1 Hickman, 330 ft. S and E, NW cor. Sec. 40-4-1e ..... S.D. 2,130 ft.
J. C. Prine et al's No. 1 Baum, 600 ft. N and E, SW cor. NE SW Sec. 27-6n-2e ..... S.D. 2,610 ft.

UNION PARISH

Ward & Jones' No. 1 Miller, 330 ft. S and E, NW cor. SW SW Sec. 16-21-2e ..... S.D. 1,210 ft.

WEBSTER PARISH

I. G. Abney Oil Co.'s No. 1-B B. L. Slack, 330 ft. E. 660 ft. N, SW cor. SE Sec. 36-23-11 ..... Set 6-in. 2,734 ft.

Arkansas

CONWAY COUNTY

Sou. Union Gas Co.'s No. 1 Feldman, C SW SW Sec. 6-5n-17w ..... Drlg. 2,514 ft.

HEMPSTEAD COUNTY

A. H. Bagnelle's No. 1 Trattner & Rhinehart, Sec. 3-13-26. S.D. 1,186 ft.

LAFAYETTE COUNTY

Douglas Lawn's No. 1 Camp, 330 ft. S and W, NE cor. SW SE Sec. 14-15-23 ..... Set 10-in. 52 ft.
George W. Harper's No. 2 Bodcaw, 150 ft. S, 550 ft. E NW cor. SW NW Sec. 16-15-23 ..... S.D. 1,216 ft.

MILLER COUNTY

Duluth-Ark. Oil Co.'s No. 2 Beck, 330 ft. S and E, NW cor. SE SW Sec. 34-15-26 ..... Arranging to pump with jack 2,807 ft.
Fitzwater et al's No. 1 Norson, SW cor. SE SW Sec. 20-15-27 ..... S.D. 3,177 ft.
King Oil Corp.'s No. 1 C. H. Schroder, 300 ft. N, 330 ft. E, SW cor. SW NE Sec. 34-14-28 ..... S.D. 1,502 ft.
C. E. Murdock's No. 1 Rose, Sec. 4-16-26 ..... S.W. and abd. 2,920 ft.
E. L. Young, Tr.'s No. 1 Patterson, SE cor. SE NE Sec. 5-19-28 ..... Coring 3,600 ft.

OUACHITA COUNTY

L. L. McDonald's No. 1 J. A. Robertson, 200 ft. S and E, NW cor. NE NW Sec. 25-15-16 ..... W.O.S.R. 2,092 ft.

UNION COUNTY

E. R. Henderson's No. 2 J. H. Ogden, 330 ft. S and E, NW cor. SW SE Sec. 32-18-14 ..... Derrick destroyed by fire.
E. R. Henderson's No. 1 Vines, 330 ft. N and W, SE cor. SW SE Sec. 29-18-14 ..... P.B. to 2,161 ft.
Mrs. R. K. Jones et al's No. 1 J. Davis, 330 ft. N and W, SE cor. NW NW Sec. 28-16-14 ..... Set 10-in. 120 ft.
Marine Oil Co.'s No. 2 Simmons, 150 ft. W, 300 ft. N, SE cor. NE NW Sec. 10-18-13 ..... Comp. flowing 100 bbls.; 3,524 ft.
Tubal Pet. Co.'s No. 1 Gaddy, 340 ft. N and E, SW cor. SE NW Sec. 14-17-14 ..... S.D.; W.O. 3,416 ft.

Mississippi

GREENE COUNTY

United Gas Public Service Co.'s No. 1 Davis, C NW Sec. 30-1n-5w ..... Set 7-in. 5,200 ft.

MARION COUNTY

Pelican O. & G. Co.'s No. 1 Pineland, Inc., 400 ft. S and W, NE cor. Sec. 22-3n-17w ..... Set 10-in. 300 ft.; drlg. 1,520 ft.

PIKE COUNTY

B. D. Tinsley et al's No. 1 State Bank, C SE Sec. 28-3n-7e ..... Set 10-in. 478 ft.; drlg. 1,820 ft.

SIMPSON COUNTY

Beavy Corp.'s No. 1 R. J. Beavy, C SW Sec. 24-3n-4e... S.D. for 6⅝-in. 2,325 ft.

WALTHALL COUNTY

Mutual O. & Gas Co.'s No. 1 Boyd, Sec. 24-2n-9e, SW cor. SW SE ..... Moving in rig.

WARREN COUNTY

Orbet Drlg. Co.'s No. 1 R. L. Parker, 300 ft. E CWL, Sec. 14-14-1e ..... Tested dry 3,169 ft.; S.D.

Louisiana-Arkansas Proven Areas

North Louisiana

CADDO—RODESSA

Company, well, farm name, section and block—	Remarks:
R. W. Norton's No. 1-B J. B. French, 660 ft. S and E, NW cor., Sec. 34-23-16	Fishing for tubing 6,717 ft.
United Gas Pub. Ser. Co.'s No. 1 Deer, 1,320 ft. N and W, SE cor. Sec. 28-23-16	Set 13⅜-in. 381 ft.

CADDO—HOSSTON

Shore Line Oil Corp.'s No. 1 Skelly, 3,770 ft. N, 1,873 ft. W, SE cor. Sec. 13-21-16 ..... Comp. pumping 10 bbls., 1,057 ft.

OUACHITA PARISH

Ark.-La. P. L. Co.'s No. 6 Rea & Green, 2,240 ft. S, 1,400 ft. W, NE cor. Sec. 10-18-4e ..... Comp. 1,750,000 ft. gas 2,195 ft.

SABINE PARISH—ZWOLLE

Dyer et al's No. 1 McCollister, 330 ft. S and E, NW cor. SW NE Sec. 34-7-12 ..... S.D. 1,100 ft.
M. J. Kissick's No. 1 Barr, 350 ft. S and W, NE cor. SW SE Sec. 6-4-11 ..... Drlg. 1,100 ft.
Magnolia Pet. Co.'s No. 2 Gindratt, 330 ft. N, 330 ft. E, SW cor. SE Sec. 29-8-11 ..... T.A. 2,485 ft.
Magnolia Pet. Co.'s No. 2 Peterson, 990 ft. S, 330 ft. E, NW cor. NE NE Sec. 10-7-11 ..... W.O.S.R. 2,748 ft.
Monroe Prod. Co.'s No. 4 Sabine Lbr. Co., 330 ft. N and E, SW cor. SE NW Sec. 7-7-11 ..... Set 10-in. 46 ft.
J. H. Reeve's No. 3 Sabine Lbr. Co., 330 ft. S, 250 ft. E, NW cor. SW NW Sec. 7-7-11 ..... Tested S.O. 2,616 ft.
Service Drlg. & Roy. Co.'s No. 1 Wells Est., 660 ft. S, 330 ft. E, NW cor. Sec. 8-7-10 ..... Set 10-in. 40 ft.; drlg. 2,250 ft.
Tex-La-Ark Oil Co.'s No. 1 Pickering Lbr. Co., Sec. 2-2-12 ..... S.D. 1,050 ft.; repair boiler.
Texas Co.'s No. 2 Cooper, 330 ft. N and W, SE cor. Sec. 30-8-11 ..... Set 10-in. 66 ft.; drlg. 2,205 ft.
A. H. Tarver's No. 2 Bauer and Barthold, Sec. 25-8-13 ... Dry and abd. 2,639 ft.
John Wrather et al's No. 1 Pruitt, 110 ft. W, 330 ft. N, SE cor. SW NE Sec. 25-8-12 ..... W.O.S.R. 2,575 ft.

SABINE PARISH—PLEASANT HILL

Bridges Co., Inc.'s No. 1 Moore, CEL NW NW Sec. 5-9-13 ..... Using acid 2,130 ft.

Mississippi

HINDS COUNTY

Alexander & Weaver's No. 1 Mayes, Sec. 25-6n-1e ..... Comp. est. 50,000,000 ft. gas 2,433 ft.
Benedum & Trees' No. 1 Archer, C NW NW Sec. 35-3n-1e ..... D.S. stuck 5,725 ft.

RANKIN COUNTY

Benedum & Trees' No. 1 Southern Dev. Co., Sec. 35-3n-1e ..... Drlg. 5,610 ft.
Ferguson, Fuller & Mets' No. 1 Ammons, 350 ft. E and S, NW cor. NW NW Sec. 25-3n-3e ..... Partly rigged and S.D.
Henslee & Tanner's No. 1 Sloan, 450 ft. S and E, NW cor. NW SW Sec. 7-5n-3e ..... Comp. est. 40,000,000 ft. gas 2,409 ft.

East Texas (Border Counties)

CASS COUNTY

R. K. Karnon et al's No. 1 Savage, Mary Patterson Sur... Set 10-in. 60 ft.

HARRISON COUNTY

R. C. Payne et al's No. 1 Lowery, E. D. Spain Sur. ..... Reaming 3,445 ft.

PANOLA COUNTY

Acre & Rotunda's No. 1 Burnett Lbr. Co., J. H. Mallory Sur. ..... S.D. for high wtr. 660 ft.
Adams & Despot's No. 10 Adams, Thomas Cox Sur. .... Comp. 500,000 ft. gas 2,292 ft.
Givens & Holloway's No. 1 Wooten Est., Winnie Mann Sur. ..... Set 10-in. and S.D. 40 ft.
A. M. Keicker et al's No. 1 Frost Lbr. Ind., M. S. Potts Sur. ..... Dry and abd. 2,115 ft.
R. W. Price's No. 1 Crawford, J. A. Williams Sur. ..... Rigging up.
Sebring et al's No. 1 Bozeman, Wm. English Sur. ..... Drlg. 2,300 ft.

SHELBY COUNTY

Bush Oil Int.'s No. 1 Windham, W. M. Blackburn Sur... S.D.; high wtr. 3,366 ft.
Turner & Neil's No. 1 Pickering Lbr. Co., P. W. Harvey Sur. ..... Rigging up.

CLASSIFIED ADVERTISING

Leases—Production

WOODBINE SAND Wildcats starting where you have chance might make 40 for 1. Leases-Royalties. E. Croft, Proctor, Tex.

BROKERS-SALESMAN
The scene of the next big oil boom—The Permian Basin in West Texas and New Mexico—Can supply you with drilling blocks, close in acreage to Major Oil Companies drilling blocks or choice non-producing royalties located on geophysical highs—I have my own field men covering this area. Inquiries invited.
B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

NEW OIL—Crane Upton—Ranchowner's Warranty deed, $6, assume $3. Jefferson Smith, Nalle Bldg., Austin, Tex.

BROKERS—Well located leases and perpetual royalties at wholesale prices, small and large tracts. Write A. C. Smith, P.O. Box 927, Houston, Texas.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton. Clovis, New Mexico.

TO interested oil companies. For Sale, 116-acre lease Brod farm in the T. W. Fisk Survey, Waller County. For full information, write Albert Hammer, Hotel Cotten, Houston, Texas.

16 SECTIONS Texas Oil, Gas and Mineral leases for sale. Thousands of acres already leased. Rigs moving in nearby. Mineral rights alone worth more than present prices. A. Y. Aydelott, Sterling Bldg., Houston, Texas.

TO LEASE 2,000 acres in Southern Alabama oil field. Thousand of acres already leased. J. W. Newman, Mobile, Ala.

OIL Leases. Four structures. Colorado. Reliable Geological reports; 70,000 acres; 75% acreage given for test wells. B. E. Goodale, 3 W. 92nd St., New York City.

TEN YEAR PAID UP OIL AND GAS LEASE
In area that will receive early development; 1,000 to 10,000 acre blocks—$1.15 per acre and up. L. W. Stieren. 1018 Alamo Natl. Bldg., San Antonio, Texas.

1,900 ACRE 10 year oil, gas and mineral lease. Block 51, Hudspeth County, Texas; 35 cents an acre with 10c yearly rental per acre. C. N. Reynolds, Box 311, Dallas, Texas.

LEASES—Ector County and Bonnie View area, Refugio county, near activity. Anderson, 709 Linz Bldg., Dallas, Tex.

3,000 Acres Tennessee oil leases, all on structure. Shallow drilling. Proven fields. Pipe lines two sides. Refinery close. O. T. Reynolds, Exch. Bldg., Nashville, Tenn.

NEW Discovery of locating oil pools. Better than drilling. Fast, accurate, economical. Lab., 957 Davis. Fort Worth, Tex.

Situations Wanted

TRAFFIC MAN, 37, married; ten years with present company; liquidation necessitates change. Now available. Address Box G-150, The Oil and Gas Journal, Tulsa, Okla.

I WANT a connection with future possibilities in a substantial growing concern as manager, officer or supervisor. Have had years of experience in general administration, organization and handling men, financing (stocks, bonds, notes), credits, accounting, production, marketing and construction. Employed now but want to change. Age 35. Married. Details of experience and references on request. Address Box G-160, The Oil and Gas Journal, Tulsa, Okla.

ACCOUNTANT-OFFICE MAN wants job in Okla. City, Ft. Worth or Dallas. Ten years experience in both field and office. Acquainted with all departments of Oil Business. Married, age 34. References. Address Box G-161, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

SALESMAN WANTED — Must have thorough knowledge and experience pipe, tubing and casing. Mid-Continent Territory. Address Box G-151, The Oil and Gas Journal, Tulsa, Okla.

Financing

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25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also, large stock of lathes, pipe machines, milling machines, etc. Send for our list. Terms to suit.
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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

For Sale—Equipment

Royalties—Production

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Tulsa, Oklahoma

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H. P. BOWEN
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JAMES B. McANALLY
Speculative Royalties.
1114 Hunt Bldg.
Tulsa, Oklahoma.

High Grade Producing Royalties
Mid-Continent Area
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Royalties—Production

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